462 roaming far afield in search of water and pasture. They work in the fields, milk the animals (with the exception, in some cases, of camels), gather the firewood, and fetch the water. They are not [562 so careful to keep themselves veiled, finding it sufficient to draw their head cloths in front of their mouths. If she belongs to a nomadic tribe a woman will follow her husband in his search for grazing, carrying the household utensils, usually one large saucepan, on her head and the baby on her back. Only very occasionally do the women emigrate with their husbands, but we travelled with such a family [illegible] the start of their journey to Zanzibar to seek a fortune.

562 The remaining women are those of the poor townspeople, the 462 female servants, slaves, or Subians. The last two are least particular about veiling. The others, no matter how poor, will always cover at least the lower part of their faces. Toil is the portion of all of them: they labour in the gardens, help the men and animals [482] to draw water from the wells, and in many towns they are the principal water carriers, bearing their burden in skins slung across their backs. The servants and slave women in well-to-do houses lead an easier existence. They cook the food, do such cleaning as is ever done, and fetch and carry for the ladies of the household. Slaves may be taken as concubines, but find their husbands among their own class. They are much favoured, being brought up as members of the family, and, like many privileged retainers, usually become somewhat outspoken and domineering in their old age.

CHAPTER VII.

PRODUCTION AND RESOURCES OF THE HADHRAMAUT.

311 The natural resources of the Hadhramaut, such as they are, are principally agricultural. It is perhaps unnecessary to emphasize that only a very small proportion of the total area of the country, [131] which may amount to 35,000 or 40,000 square miles, is suitable for the growing of crops. As a general rule only wadis can be so used and the bulk of the land surface consists of the barren rock of mountains and steppes.

Tobacco.

249 438 455 The principal crop of economic importance is the well-known Hamumi tobacco, and Gheil ba Wazir is the principal centre where it is grown. Practically speaking the production in that place is entirely Government-directed and all the land is State land.

The nurseries are situated about three miles from Gheil at Al 312 Quf. Here there is an apparently inexhaustible, somewhat brackish, water supply at depths to about 30 feet from the surface. There are three deep pools which are tapped by subterranean channels for Gheil and Al Harth, the source of the Gheil water supply being called Humat al Farath, and that for Al Harth being called Humat al Harth. Along the line of channels from these pools there are at intervals of some 20 feet a series of shafts similar to those 312 described in connection with the Mukalla water-supply. Humat al Harth is temporarily not giving water, as the level has fallen below the channel. At Al Quf itself there are a number of wells, and round each are nursery beds where the tobacco seedlings are 249 grown. The beds are divided into patches three or four feet square and the seed close sown, so close that even where seed does not germinate the workers cut small scratches in the ground and plant fresh seed. When the seedlings are grown to a height of about three or four inches they are taken from Al Quf to Al Harth, about a mile and a-half away, and planted out in rows with intervals of a foot, or three-quarters of a *dhirra*, in beds of a size dependent on the amount of water. A bed is called *mutr*, plural *mutira*, and each is surrounded by a ridge to keep in the irrigation water. In due course the crop is gathered and dried. Drying barns are unknown.

The crop[1] is financed by the merchants who advance the money to 454 the cultivators and are paid back either monthly or after the crop. 427 In the case of the Government lands at Gheil some cultivators pay their rent in advance and some after the crop. 655 The rent of the whole area of the Sultan's land at Gheil is assessed before each season and the figure required communicated to his representative there. This official then rents out the land at a figure per acre based on the total sum required.

The total annual value of the crop is now estimated at five lakhs, 432 of which the Sultan receives Rs.120,000 in duty and ground rent. 651 Production costs are estimated at three lakhs, so that the profit to 434 the cultivators is Rs.80,000. In order to foster the local consumption of tobacco, there is a monopoly of imported cigarettes and pipe 655 tobacco.

Of tobacco, Mr. H. M. Heald in his report of the Agricultural 249 Mission to Mukalla says that in the Meifa valley " the cultivation of the tobacco received more attention than any other crop. . . . The seed was sown in a small plot of land which, in the large villages, had been heavily manured with sheep dung mixed with fine earth. [241] When 40 days old the plants were transplanted into the small beds at distances of one foot apart, and again manured with fish; irrigation varied in the villages but generally every seven days.

" Topping of the terminal buds took place after all the leaves had been formed and the plants were ripe for cutting in four or five months, according to district and season. The plants were dried on the ground first singly and then in small bundles, and afterwards hung up in rows. After drying again in bundles, they were covered with sacks to promote fermentation, and then the plants were taken into the houses for further drying in the dark, and ready for transporting to the coast in a week or so. Practically no grading was done . . . and I am sure " he writes, " better prices would be obtained if more attention were paid to selection."

[1] [Tobacco -- Analyst]

Guano, brought from the small islands of Sikka or Jibus and Jazirat 241
Bureika near Bir 'Ali west of Mukalla, is used when obtainable, but it is expensive. In the heavily-wooded parts of the Wadi Maseila the bush is burnt when cut. This provides a potash dressing the value of which is appreciated by the cultivators.

Terrace cultivation.—" The villages had very little cultivable soil 311
and in many cases the small terraces had been made by bringing 241
soil from a distance and then built up with rubble revetments, the area varying from 5 square yards to ½ acre. These terraces were always built on the sides of the hills to avoid destruction by floods, and the houses generally on a higher level." Of the Meifa valley, Mr. Heald says that the cultivated terrace areas which were in bulge-like shape along the stream were irrigated by taking the small canals off from the rivers or springs at varying heights and bringing them down at great distances to the terraces. Although all the terraces I saw were generally above flood-level, there are none built high up the Wadi walls.

Irrigation.—Land is irrigated from springs, wells, or rivers. 241
When wells and rivers are used, cattle, or camels, or donkeys, or 312
men and women, or a combined team, pull up one or two leathern buckets attached to a rope running on a wooden pulley. The water then flows down a mortar or mud channel and is finally distributed to the land by small canals. The quantity delivered from a well by this method does not exceed 500 gallons an hour. When the land is irrigated from springs, the water is conducted by channels to the various terraces. In order to supply all the various levels, these small canals take off at great distances and there is consequently considerable loss by percolation and evaporation before the water reaches the land.

Occasionally hollowed-out halves of date palms are used as water channels for crossing hollows, and the cultivators of the Wadi Maseila display considerable ingenuity in bringing the water from the river to the land they are working. The river is usually at some distance from the foot of the steep bank above which the land is cultivated. Channels are dug from the river and a deep hole made at the foot of the bank. A scaffolding is erected over the hole to carry the usual well machinery, and a mud aqueduct supported by tree trunks and branches carries the water on to the higher level ground where it is distributed by canals in the usual way. A sloping walk of timber covered with earth is also provided for the team of animals and humans. Dams to raise the level of the water, and made principally of brushwood, are a common feature of the Wadi Maseila. In other places we saw a number of stone dams.

In most villages irrigated from springs the water is shut off 312
at sunset, and the spring fills a cistern made from stone and mortar designed to hold the spring water running during the night. The springs naturally vary in volume, but Mr. Heald states that they generally range about 5,000 gallons an hour. Of Meifa he states,

312 "The quantities of water differed very much and ranged between 100 gallons and 10,000 gallons per hour in the springs, whereas only about 400 gallons per hour were obtained from the wells, but this quantity naturally depended on the amount of work done by the cattle. The stream in the Meifa valley was rather difficult to estimate on account of its underground sources and losses by evaporation, but, after several calculations, the quantity was decided on 1 m.^{3} per second and the fall averaged generally 5 feet per mile. This refers only to the stream in open country; as many portions of it poured down through narrow gorges, where it was impossible to calculate."

241 *Dry-farming.*—Heald states that in the villages of Kanina and Jol ar Rakh, or generally the district lying between the Meifa valley and Asfal al 'Ain, he discovered a system of dry-farming worked in connection with the flood irrigation. The flood water, which unfortunately could not be depended upon, poured down the wadis, and by a very good system of canals was conducted on to the land, and the seed sown in the mud—the surplus water being sent down to villages lower in the wadi. In some years the cultivators managed to sow two crops, spring and summer, if the floods permitted, but they only relied on the spring water. In the village of Kanina the cultivators sometimes left the roots of the millet in the soil after harvest, and thereby obtained a second, but very poor, crop.

After the harvest, the land was continually ploughed to retain the moisture ready for the next year, and the cultivators were quite aware of the importance of treating the surface oil in the dry-farming principles; however, where possible, irrigation was done from the springs and wells.

Cultivation.—After ploughing or hoeing the surface, the seed is either broadcasted or sown in holes. The great millet is generally sown thickly in a small plot and transplanted when about 12 inches high, but the other millets are merely broadcasted. As the stalks of great millet are too thin to carry the heads, about a dozen of the plants are tied together by the heads as soon as the seed begins to form. *Dijar* is planted between rows of millet in order to shade it from the sun. It is harvested after two months.

In some parts of the Hadhramaut, as in Africa, men, women and children sit on platforms built above the crop and use a small sling and stones to scare away the birds.

Harvesting.—When ripe, the great millet is cut close to the ground with a small sickle. After a few days' drying, the heads are cut off and beaten by flails. The heads of other grain are generally cut first and then the stalks pulled up for the cattle, and the stubble burnt on the ground The grain is put into shallow winnowing fans of a common eastern and African type, and thrown into the air for the wind to separate the chaff from the grain. I saw at least two patterns of quern used for grinding.

[654] 311 241 Mr. H. M. Heald, the agriculturist, visited Asfal Al 'Ain, the Sultan's estate at Fuwa, and the Wadi Meifa. As regards Asfal Al 'Ain, he reported that the whole country along the Wadis through which he travelled consisted of hills and wastes, and from an agricultural point of view was very disappointing. In this rocky region, land is scarce. In a few small hamlets, terraces have been made with soil collected in the wadis, and a few acres of these are cultivated, producing millets, sweet potatoes, dates, and tobacco on a poor scale. These terraces are irrigated from springs and wells, but the latter give very little water. No definite seasons are followed for sowing and harvesting of crops. In one village Mr. Heald saw a crop in three stages of growth, viz., newly-sown, half-grown, and harvested. The soil is generally a light shallow loam of alluvial nature, devoid of humus, and, cultivated as it is by the most primitive methods, is becoming more impoverished year by year. Very little manuring is done owing to the cost of transporting fish and the scarcity of dung.

At Fuwa he saw 250 acres of millet and tobacco cultivated by the Sultan's slaves. Owing to the poor soil and bad cultivation, the produce was but small and none of it marketed. The villages along the coast to the entrance of the valley near Ras Al Kalb are similar to those in Asfal Al 'Ain district, but the cultivation is poorer.

Mr. Heald estimated the total area of the soil in Sidara, cultivated and capable of being brought under cultivation, at about 14,000 acres, of which considerably more than one half consists of swampy or salty land at the mouth of the river at Hali. The total area of all the land fit for cultivation in the country he saw, he estimated at under 20,000 acres.

[312] Owing to insufficiency of water for irrigation purposes, Heald considered it would be difficult to reclaim any large area of land at the mouth of the river at Hali, as most of this land is either swampy or bad salty soil due to the river changing its mouth frequently after heavy rains coming down the valley from the interior. The water is also very salty. Another obstacle to developing this area, and, at present a very big one, is the unhealthy climate and the impure drinking water.

000 Mr. Heald concludes:

> "As regards settlers, it would, on account of the scarcity of land and the unhealthy climate at Meifa, be quite wrong to try and induce people to emigrate from India on a large scale, but a few could be settled at Fuwa and higher up the valley at Jol and Giswal. The present inhabitants, the Sybians, who are acclimatized, could then be sent to the mouth. As, however, this would only affect a very few thousands of acres, perhaps the expense would not be worth the trouble, and the

135 of lignite in the detritus on the slopes and in the wadis are very rare; this he considered to be probably due to the very heavy rains which fall in the mountains every few years, which produce such floods that enormous rocks are moved along the wadi beds.

461 Mr. Little stated that the difficulties of working the deposits had
312 been pointed out by Mr. Beeby-Thompson and Dr. Ball (who
visited Mukalla in 1918). They thought that cheap unskilled labour
135 could be produced locally, but for working on a large scale Mr. Little expressed the opinion that the local supply would prove unreliable and that labour would have to be imported. On the other hand, Messrs. Beeby-Thompson and Ball were not aware that a river (the water of which is slightly saline) flows through the oil-shale district near Neifa. Above Neifa the water is potable when boiled, but below Neifa it is very tainted by the petroliferous deposits through which it passes. Supplies of water might also be obtained by conserving the flood-water which flows down the wadis from the interior. There is generally a small flood every rainy season, with bigger floods every few years.

135 The heat of the sun in summer in the Hadhramaut is so great that rocks near the surface must lose most of their volatile constituents, and, to get a true indication of the amount of these it is necessary to take samples from a greater depth than has been done hitherto. The improvement which may take place with increasing depth is shown by the results of the analysis of two samples from Asfal Al 'Ain. The first was collected from different parts of the face of the seam which had been exposed for over a month, and the second was obtained by driving a hole 5 feet into the seam and taking it from the last portion removed. The calorific value of the latter sample, from Asfal Al 'Ain being 11,466 B.T.Us. and of those from Kasai and Wadi Howeri over 10,000 B.T.Us., show that in a country where fuel supplies are very scanty the lignite deposits would prove an important source of fuel. The oil-shales probably extend to south-west much beyond the area visited and mapped, and if at some distance below the surface they are richer than the sample brought by Messrs. Beeby-Thompson and Ball, they could be distilled near the river. In the economic exploitation of the fuel resources of the Sultanate, the possibility of finding oil fuel in the As Sidara district should be considered, as if oil exists there the pipe-line could be brought down the river to Wadi Arus and Neifa and thence to the coast. The river at Wadi Arus is 15 miles and at Neifa 10 miles in a straight line from the lignite deposits at Ad Da'liya, from which the fuel for the distillation of the oil-shales might be obtained. The danger of pipe-lines and railways being swept away by the big floods which occur every few years would have to be borne in mind when laying them. There is an anchorage for dhows at Mersa Riqeima just east of the river mouth, which Mr. Little thought might be suitable for small steamers except during the monsoon period.

The sanitary systems, if any, vary throughout the large towns 364
of the Hadhramaut. There are no drainage or sewerage systems
in Mukalla. The houses for the most part are equipped with pit-latrines
cleared every six months or a year. Waste water runs
out from gullies projecting from the walls of the houses. At the
time of my first visit there were 25 sweepers in charge of a
muqaddam who were said to work from early morning till noon,
and from two till six, but, apart from the main market street,
there appeared to be little evidence of their activities. Since that
time the number has been slightly increased, and, under the doctor's
superintendence, the streets are somewhat cleaner.

In Shihr the waste water is allowed to settle into pools. As a consequence mosquitoes are a serious pest, but there is said to be little fever. There were no anopheles amongst specimens I captured. In Shibam there is a system of narrow gutters running down the middle of the streets. These become congested with rubbish and are rarely cleaned out, but when they are the refuse is sold.

Water Supply.

The water supply of Mukalla is brought from a reservoir at 365
Baqrein, about four miles distant. The source is a mile further 312
away at Bakezebur where there is a long series of deep wells,
mostly protected by a stone coping but with no covering. These
wells were constructed by labourers brought from Gheil ba Wazir
where there are men " who know how to make waterworks ". The
wells are connected at the bottom by a subterranean passage, used
by those who clean the channel, along which the water flows till
it emerges into an open cement channel leading to the reservoir
at Baqrein. This reservoir is divided into compartments and the
water passes through them into a delivery pipe. The outfall to
the delivery pipe is partially protected from debris by a wire trap,
and just outside the reservoir there is a covered manhole. There
is no filter system and for the greater part of its length the supply
is entirely unprotected, but the water is clear and apparently clean.
It is conducted in pipes to the side of the mountain, along which it
runs in a covered masonry channel, except where it is carried across
gaps in pipes supported by piles. In the town there are reservoirs
fitted with taps from which the water carriers draw their supply.
Water supply is only laid on to the palaces and a few mosques.

The work was planned and begun by Sultan 'Awadh as a *Waqf* 365
and was completed by Sultan 'Umar. It reflects great credit on the 653
Mukalla administration, and if some protective measures were
adopted would be, I should imagine, an unimpeachable supply. It 164
is fortunate that cholera and typhoid are apparently unknown in
Mukalla as it would be extraordinarily easy to contaminate the
supply which, as I say, is unprotected, unfiltered, and not
chlorinated.

There are several wells in Mukalla in which the water is brackish. 312
The palaces, the Wazir's house, and the guest-house are fitted with 000

The palaces, the Wazir's house, and the guest house are fitted with

365 electric light generated by a petrol engine. The system is continued along the water front as far as Sultan 'Umar's mosque.

365 312 The town water supply in Shihr is brought in a covered aqueduct from Tubala, 6·7 miles away. There are many springs at Tubala, most of which are hot, and a number are heavily impregnated with sulphur. The reservoir for the Shihr water supply consists of a large open tank which is fed by an open channel from the spring. As in the case of Mukalla there is no sort of protection. Shibam draws its water supply from wells, for the most part in the suburb of Seheil. The water is slightly brackish. The rest of the country depends on wells, springs, rivers, and rain cisterns.

Educational Activities.

658 871 794 In Mukalla there are three Government schools (two Arab and one English), and at least three private schools. In addition to these Arab schools Yusuf Sherif, the principal Indian merchant and Collector of Customs, maintains a private Gujerati school in which there are 42 boys and eight girls at present. There used to be schools in every mosque, but Sultan 'Umar suppressed them and ordered the boys to attend the Government schools. However, despite this prohibition I understand that a few maintain a precarious existence.

871 The larger of the Arabic schools, Al Madrassa al Khariya as Sultanja had been in existence for four years at the time of my visit and had twelve classes: *Hijar*, or Elementary, four classes; *Tahdir*, two classes; *Daraja Awal*, First standard, three classes; *Daraja ath Thani*, Second standard, one class; *Daraja ath Thalath*, Third standard, one class, *Daraja al Arb'a* Fourth standard, one class. A Fifth standard was to be added shortly.

On the register there were 290 to 300 boys aged from six to 14 and even 16, and perhaps older. On inspection the attendance at the various classes was as follows :—

Hijar	...	56
Tahdir	1	20
	2	31
Daraja	I.—1	32
	2	20
	3	27
Daraja	II	12
Daraja	III	13
Total exclusive of the Fourth standard	...	211

The staff consists of a *Mudir* or Principal, a *Murakib*, who is responsible for the discipline of teachers and boys, and 12 teachers. There are nine class rooms, the four classes of *Hijar* sitting in one room. Up to *Daraja* I the boys sit on the floor, after which they are at desks. The school is closed on Fridays and on the 'Id days which are as follows: 'Id al Hajj, five days, 'Id al Fitr, five days, 12th Rabi' Awal, Maulad an Nebi, one day, 29th Ramadhan, 631 The Kathiri claims the Hamumi, Nahd, 'Awābitha and Sei'ar tribes as his allies. The agreement with the Nahd, which is said to be similar to those with the Hamumi, 'Awābitha and Sei'ar, is included in an appendix. It is stated that these tribes would join the Kathiris if there was trouble with the Qu'aitis.

Kathiri Towns.

101 The country ruled by the Kathiris was formerly of vast extent and stretched from the 'Aulaqi country on the west to the Mahri on the east, including the country of Dhufar beyond. The history of the circumscription of the territory to its present limits appears sufficiently in an earlier chapter of this report.

631 Of the six towns or villages mentioned as being included in the
632 Kathiri dominions Seiyun and Tarim are the largest. Seiyun, the capital of the Āl 'Abdulla Sultans, is a walled town of over 1,500
361 houses and about 50 mosques. The suburbs, which are all to the east of the town, are extending fairly rapidly with the building of pleasant looking residencies, most of them with their own gardens. The population is said to be about 20,000. Tarim is also a growing town with an estimated population of 15,000. Its walls, which are over five miles in length and are furnished with five gates and 25 forts, enclose a great deal of open space so that most of the better class houses have their own gardens. There are over 2,000 houses, and there are said to be 300 mosques, one of which, built by the Al Kafs, has the highest minaret in the Hadhramaut and is of an unusual pattern. The principal shrine in Tarim is that of M[illegible]addam Faqih. There are growing suburbs outside the walls such as 'Aidīd, but some of the suburbs such as Thibi, Dammūn, and Beit Jabīr, belong to the Tamimis and are under Qu'aiti influence. Tarim and Seiyun are striking for their many
342 palaces, equipped in modern style, to which reference has already
365 been made. These houses have a water supply laid on and pumped
312 up by small petrol engines. The towns are well supplied with wells, and Tarim is remarkable for being the only town in the Hadhramaut with public conveniences, which, however, are rough mud erections and very insanitary.

361 Taris is a village lying to the west of Seiyun, and its inhabitants
521 do not exceed 700. Mariama is a small village to the east of Seiyun with a population of about 300. Al Ghurf, also a small village, lies to the north of Tarim and has a population not exceeding 250. Gheil bin Yomein is said to be a popular place of resort during the autumn. It is a small village of which the majority of the inhabitants are Beduins.

565 A great deal of wealth comes into the Kathiri towns from the East Indies, and the towns of Tarim and Seiyun, which are considered centres of culture and learning, include many wealthy inhabitants whose fortunes have been made in the East Indies.
000 The whole of the Kathiri part of the wadi is accessible by motor

POLITICAL DEVELOPMENT IN THE HADHRAMAUT

HAROLD INGRAMS

INTRODUCTION

131 To the Arab geographers the Hadhramaut is a province of South
114 Arabia, to the west it remained until 1934 an imperfectly explored part
of the peninsula with the chiefs of which Great Britain had had treaty
relations since the end of the nineteenth century. From 1934 till the
present time it has been my good fortune to explore it, to live in it and to
be associated with its political development.

631 Politically it consists of six treaty areas, the Qu'aiti State of Shihr and
Mukalla, the Kathiri State of Seiyun, the two Wahidi Sultanates of Bir 'Ali
643 and Balhaf and the two tiny sheikhdoms of 'Irqa and Haura. Juridically
all these treaty chiefdoms are of the same status, but the premier chief is
the Qu'aiti Sultan of Shihr and Mukalla who has the title of Highness and
a salute of eleven guns, and after him comes the Kathiri Sultan of Seiyun
with a salute of nine guns. Until the nineteenth century the Kathiris had
been for some centuries the ruling dynasty of the greater part of the country
depending for their power on foreign mercenaries, most of whom were
Yafa'i tribesmen from the mountains of the lower Yemen. In course of
time these mercenaries became more powerful than the Kathiris and from
them arose two dynasties, first of the Kasadis and then, conquering them
and much of the Kathiri country, the Qu'aitis.

133 The Hadhramaut is essentially a desert region, with a negligible and
132 uncertain rainfall, in which the inhabitants have from a respectable antiquity
evolved elaborate systems of irrigation to make the most of their
312 limited water and infertile soil, on which they have probably never been
able to support themselves. But as the Hadhramis are commercially an
439 enterprising people they have for as far back as we have any certain knowledge
of them, a matter of rather more than 2,000 years, lived on trade.
167 The ancient Hadhramaut lived on the incense trade: when that went by
sea they learnt to emigrate and for centuries now the Hadhramis have
gone abroad to earn money in the countries bordering the Red Sea, in East
Africa, in India and most of all in the East Indies. One in every three or
four Hadhramis is always abroad, generally temporarily for it is always
their ambition to return home, and the largest colonies and the largest
fortunes are found in the Netherlands East Indies, particularly Java.
The community in Singapore is small but wealthy.

721 Until 1937 the principal feature of their life in their own country was
chronic internal strife, for despite their ability to amass money abroad
from house property, by trade—mainly in piece goods—by money-lending,

It is the same type of building that has been carried to perfection in the towns. This brings us to the chief group of interest—the townsfolk. 342

The ancient cities usually lay on some small eminence in the centre of the main valley or up a side valley. They had defence walls round them and were probably manned by very well-organized garrisons. When the "middle ages" or "dark ages" of Arabia came upon this area with the decline of the land trade routes in the second century, these cities seem to have been abandoned as the empires broke up. The people who remained after this decline seem to have taken to living in eagles' nests and cliff-side towns built on the steep slopes of the valleys. They may be the forefathers of the town dwellers found today in the main valley of Hadhramaut and its tributaries of Wadi Do'an, Wadi bin Ali, and Wadi 'Idm. 361

People of the side valleys remained much closer to bedouin tradition than in the main valley, as in lovely Do'an, for instance—the narrow, riverless valley, its bed entirely covered with thick palm groves which are irrigated with water collected in pools and tanks from the yearly rains. They live simply, drinking the old bedouin drink of husk coffee with ginger and eating the plain millet cakes with a few dried herbs and vegetables (instead of tea and imported rice as is now done in the large towns). There are no natural resources here. Food, except dates and honey, is scarce. To earn a living the Do'anis go and trade abroad, mainly in East Africa. The women of the valley retain their picturesque costumes with heavy jewellery reminiscent of the bedouin silver. Their dresses are mostly of homespun black cotton (as also the men's coloured loin cloths), but for "best" they wear silver embroidered black velvet with gold and silver braid bodices. 311 312 511 262 439 291

Their cliff towns are a fair size and an amazing heaping-up of one building above the other. They are solid and well built of several storeys, on a long narrow plan parallel to the hillside in order not to dig too far into the mountain. Massive walls have small windows and corbelled cornices not found elsewhere in this area; they have a Gothic decorativeness that is pure instinct and a lovely rough, crumbling mud surface that fades into the mountainside because they are made of the same material as the mountain itself. Usually the houses are laid out in small apartments, a room with a lobby and a washroom to each; sometimes one, sometimes two to each floor. Both buildings and streets are narrow for lack of space. 342 361 531

But when we come to the great Wadi Hadhramaut the streets are wide and the buildings are much larger and more sophisticated. This Wadi has its underground river and innumerable wells. Luxury abounds. The people from the great valley towns—Shibam, Saiywun, Terim—made their fortunes in Singapore and Java, and here one comes to the most impressive buildings of Hadhramaut. 361 342

The great desert town of Shibam with its 500 houses is a town of merchants only. Contrary to all other towns its site is on an eminence in the centre of the valley, and I wonder whether it may not be an old Sabean site. The buildings on the outer rim of the town form a solid wall, five to six storeys high, and these are the houses of the great, where they get a maximum of air, light and view. Six storeys is the agreed maximum, so that no one shall overlook his neighbour. Only the ruler's castle, on [441]

8: Pike N-4 (no date) 1940 MM2 Hadhramaut MM2

133 presents the appearance of an undissected plain stretching to the horizon, broken here and there by flat-topped, isolated hills and extensive rock terraces. Only by a campaign of "trial and error" can one find where the drainage divides are and the limitations the drainage imposes on freedom of movement in this treeless and apparently obstacle-free terrain. Even the smallest wadi constitutes a formidable obstacle; for should descent be possible, the chances of finding a route to scramble up the opposite wall are small. With 487 almost limitless time at their disposal, the Bedouins have obtained a comprehensive picture of the stream system and have adjusted their caravan routes accordingly, utilizing the relatively few suitable passes from wadi level to plateau level. From a distance these century-old trails appear as inconspicuous paths; yet along the passes and narrow parts of present caravan routes, some of which are thought to be identical with the incense roads of antiquity, one may observe that once-jagged rocks have been rounded and polished by the passage of countless unshod men and soft-footed camels during several thousand years.

HADHRAMAUT–MASEILA DRAINAGE SYSTEM

133 The drainage of the Hadhramaut is divisible into four systems: (1) Wadi Hadhramaut–Wadi Maseila; (2) streams flowing north to the interior basin of the Rub' al Khali desert; (3) eastward-flowing streams entering the sea on the Hafif coast; (4) small and short streams tributary to the Gulf of Aden.

To the west of Tarim the main stream is known as the Wadi Hadhramaut, to the east as the Wadi Maseila. It has been explored on foot by Mr. and Mrs. Ingrams for 360 miles from its mouth to the longitude of Shabwa, where the valley walls, 1000 feet high, diverge and flare off to the north and south, leaving a sandy, featureless plain, studded with low dunes and occasional salt-incrusted flats, stretching westward toward the mountains of Yemen, 200 miles away.

For much of the distance below Tarim the water flows above ground; but upstream the bed is dry and water must be obtained [312 from wells 30 to 45 feet deep. The supply seems adequate for present-132] day domestic and irrigation requirements, and acute water shortages are uncommon. During the summer there is some rain in the interior, especially in the mountains of Yemen, and water then flows down the valley all the way to the coast, at times becoming a flood. It is suggested that the present direction of flow of the Wadi Hadhramaut may have been achieved in recent time through piracy by a rapidly eroding stream flowing south to the coast, which has succeeded in diverting drainage that formerly flowed westward into the Rub' al Khali via the broad western part of the valley.

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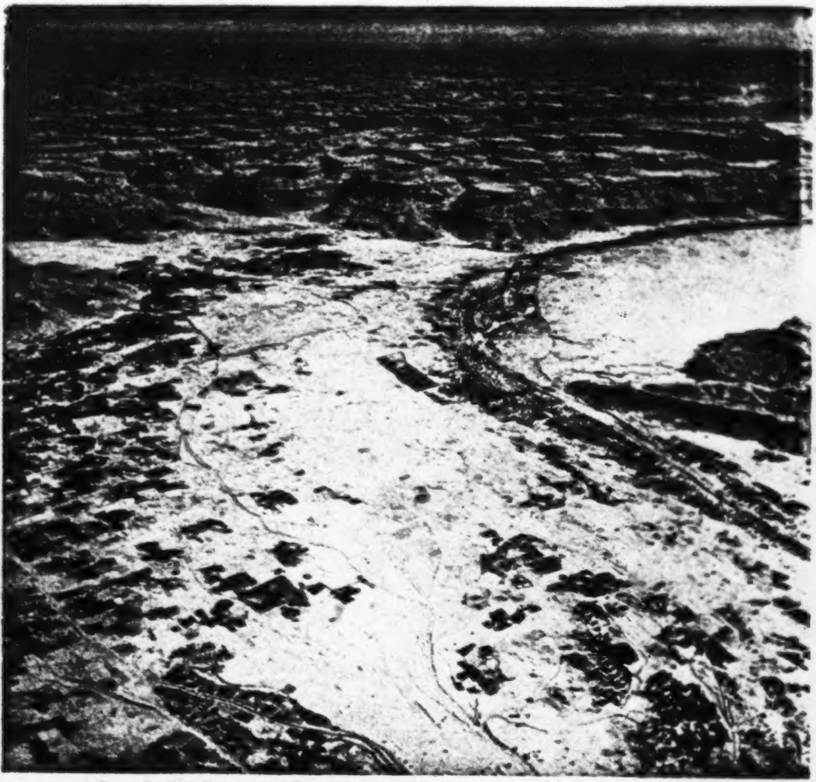

FIG. 3—The Wadi Hadhramaut at Tarim, looking eastward, i.e., downstream. Tarim, surrounded by its wall, is at the left. Trees in the broad alluvial-filled valley are date palms, irrigated by water hand-drawn from wells. The dissected character and even summit levels of the Jol (plateau) are clearly seen. Canyon walls along the wadi are 900 to 1000 feet high. Irrigation ditches to direct occasional floods are discernible everywhere on the wadi floor.

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FIG. 4—A caravan carrying wood to the market in Tarim.

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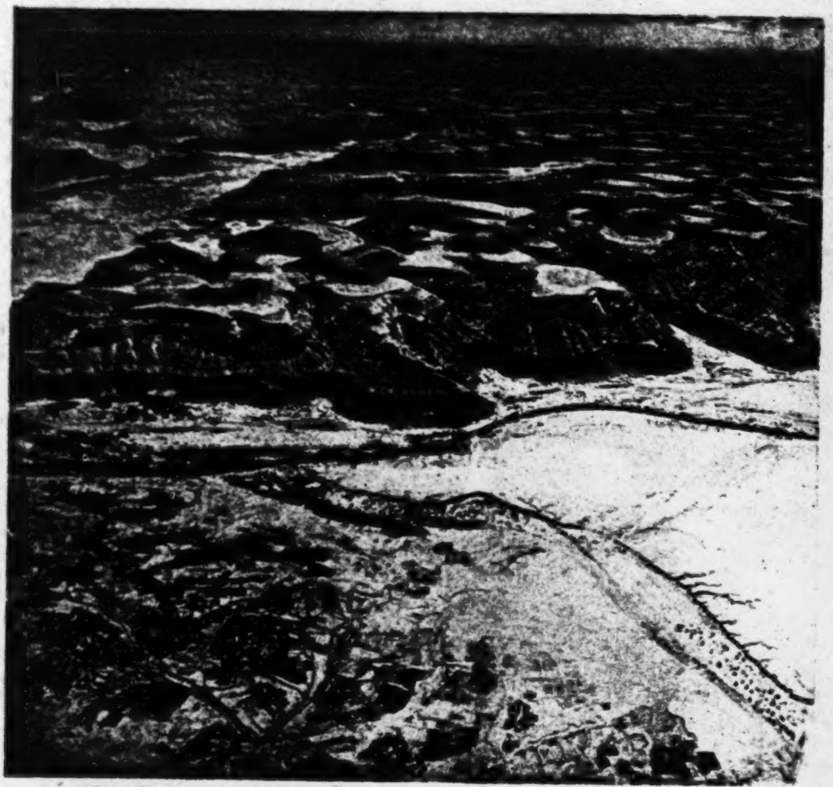

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Fig. 5—This view is practically panoramic with Figure 3. Along the crest of the nearest plateau spur may be seen a sinuous white streak, which is the Al Kaf road to the coast, distant 100 miles as the crow flies, 170 by speedometer. It may be observed that in this direction there is less stream dissection and greater expanse of unbroken plateau. The narrowing of the wadi downstream should be noticed.

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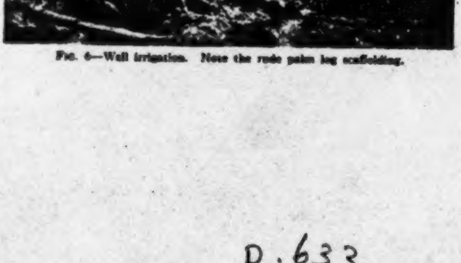

Fig. 6—Well irrigation. Note the rude palm log scaffolding.

p. 633

enter the main stream normally, i.e. the angle between main and tributary streams is acute. This suggests that the present drainage prevailed during the period of tributary incision and contradicts the hypothesis of stream reversal. On the other hand, tributaries in the area thought to be that of the former headwaters of westward drainage join the main wadi as if it once flowed in the opposite direction. 133

The apparently normal direction at which the tributaries west of Tarim join the main wadi cannot readily be explained from the data in hand; the problem requires critical study. However, it is felt that the evidence of abnormal stream profile and the relatively small amount of erosion in the central part of the valley outweigh any argument against change in the direction of flow.

STREAMS TRIBUTARY TO THE RUB' AL KHALI

Northward from the east-west drainage divide of the Hadhramaut–Maseila and Hafif systems innumerable slightly incised wadies, in a former extensive tableland, carry intermittent runoff toward the Rub' al Khali desert, where the water is absorbed and the stream channels become choked. The drainage pattern is dendritic; but the main streams, although broadly meandering, maintain a rather uniform direction down the steepest gradient of the plateau surface.

Although little is known of this region and not until recently was it observed by members of the Royal Air Force to be inhabited, it can safely be said that aridity is higher than in the Hadhramaut–Maseila basin, which is favored with annual floods from Yemen, and in the coastal zone, where a number of springs exist.

STREAMS TRIBUTARY TO THE COAST AT HAFIF

Eastward from the point where the Wadi Hadhramaut swerves from its east-west course toward the coast a drainage basin of similar trend carries runoff to the Gulf of Aden in the vicinity of Hafif. This drainage area is bounded on the south by steep-gradient streams to the sea, on the west by the Hadhramaut basin, and on the north by the drainage province tributary to the Rub' al Khali. It measures some 140 miles in length from east to west by 80 miles in width; the area is some 11,200 square miles.

The watercourses of the Hafif area are thought to be intermittent. 312
Nowhere is the water table known to reach the surface. Undoubtedly water is obtainable, as in certain parts of the Hadhramaut, by means of wells favorably located in the main drainage lines; for no other source of supply for the people of this sparsely inhabited area is apparent.

The drainage pattern exhibits both rectangular and dendritic characteristics, the former being most evident along the main streams. 133

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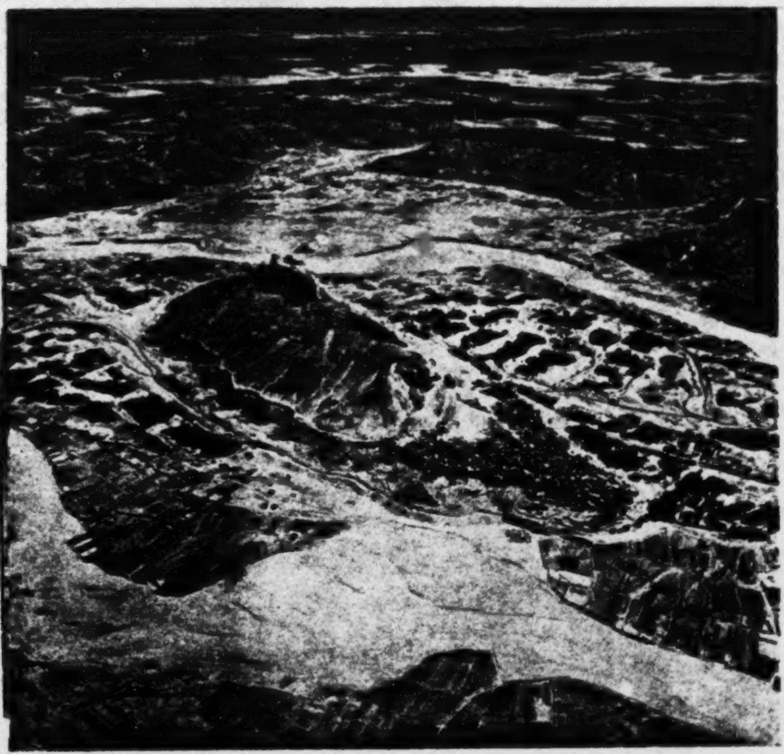

Fig. 11—Hajarein, the largest city in Wadi Du'an, is on one of the principal caravan routes between Mukalla and the Wadi Hadhramaut. Its site was obviously chosen with an eye to defense. Groves of cultivated date palms and millet fields may be seen amid a series of earthen retaining walls and irrigation ditches. As in other cities of the Hadhramaut, adobe brick is the building material.

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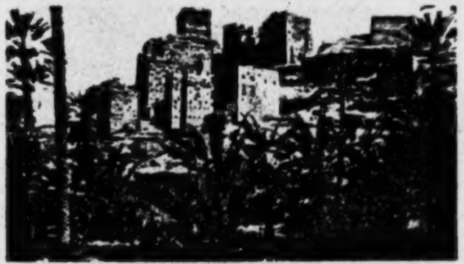

Fig. 12—A typical, fortified, Arab settlement on the banks of the Wadi Hajr. The irrigated groves of date palms furnish the main foodstuff.

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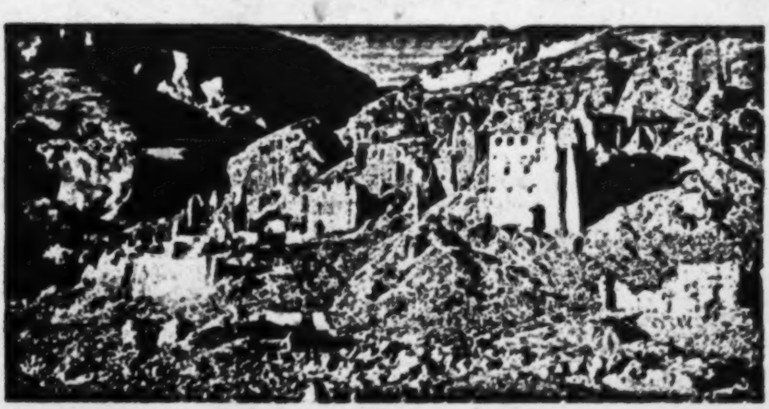
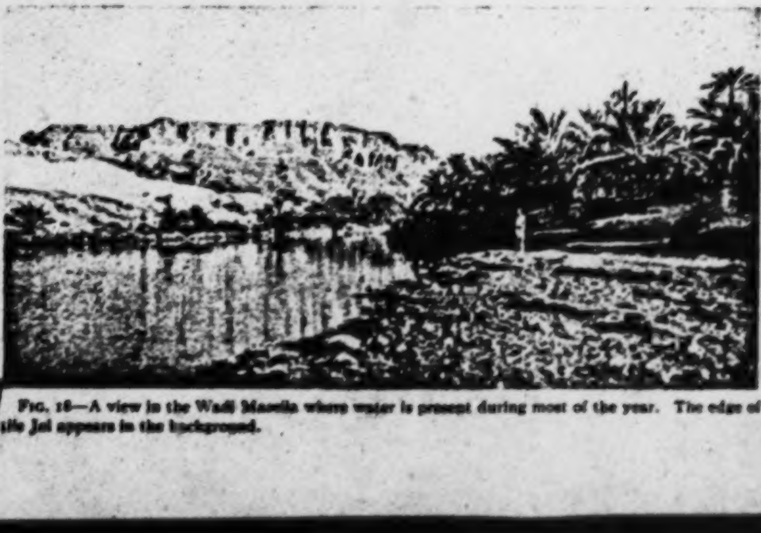


FIG. 17—Ruins of a pre-Islamic city in the Wadi Masella. The site was chosen for defensive purposes and each house was in itself a fortress.

HOT SPRINGS

133 [135] Hot sulphurous springs are widely scattered in the coastal zone, and fairly accurate accounts of many of them are available. They commonly deposit gypsum in quantity. Some of the deposits are so large as to suggest either that activity was more general in the past or that the position of the spring outlets has shifted. The springs may be attributed to the same subterranean conditions that prevail in Yellowstone Park, where descending waters become superheated through close association with uncooled rocks and rise again to the surface. 312

241 361 [271] Within half a mile of the coast of Hami, east of Mukalla, several hot springs are utilized by the natives for irrigation of date palms and millet and also for drinking. Neither here nor elsewhere does the



[312] FIG. 18—A view in the Wadi Masella where water is present during most of the year. The edge of the Jol appears in the background.

312 mineral content of the water seem to affect agriculture adversely. 241 A striking example is seen about five miles north of Shihr where a 361 series of springs depositing sulphur and gypsum have built an impressive mound, on which the village of Tabala stands. Their abundant and continued flow enables extensive irrigation by hand-dug canals and aqueducts and affords a means of livelihood for several hundred people. The temperature of these springs on emergence is not far below boiling point, and they are reported to be the hottest on the coast.

[487 FIG. 19—A caravan settling down for the night on the cold and stony Jol in the lengthening shadows 302] of the setting sun. A caravan stops wherever night may overtake it and with little or no cover the Bedouins find a place to rest among the stones and shiver themselves to sleep. A coating of indigo stain with which the Bedouins not uncommonly paint themselves is said to be some defense against the night air.

At the small village of Harshiat, 3½ miles north of Mukalla, a few tepid sulphurous springs likewise are valuable for their yield. At the village of Gheil ba Wazir, on the inland road between Mukalla and Shihr, is an extensive gypsum flat and also a group of gypsum-depositing springs. Here a tobacco-raising community has sprung up. A part of the arable land is devoted to the growing of dates and millet and the remainder to tobacco, for which, owing to a quality unsurpassed in Southern Arabia, demand exceeds supply.

The small community of Husn Baquidran depends on a limited but constant supply of nongypsiferous sulphur water in the mountains of the Wadi Hajr, 30 miles from the coast. Irrigation is practiced on a small scale. The sites of Sidara and Mahamda, on the Wadi Hajr above Husn Baquidran, were determined by the presence of several groups of sulphur springs that are used for irrigation and consumption.

VEGETATION

132 Today only the seaward fringe of the Dhufar Coast region, which 137 during the pre-Islamic empires of the Minaeans, Sabaeans, and
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Himyarites was an important export center for incense and myrrh, 132
has enough rainfall to support a thin growth of vegetation, largely 137
incense trees. From this area and the surrounding country, at one 175
time more abundantly watered, the priceless gum was most extensively collected in the past. It is still gathered today in small amounts, 314
according to demand. The gum, which adheres to the bark, is harvested from varieties of the Burseraceae family, *Boswellia Carterii* and *B. Bhua-Dajiana*, divided by the Arabs into four grades.[4] Its value, which ranges from £80 to £10 a ton, depends on such qualities 425
as color (red, green, and brown), size of the gum particles, and degree of adulteration. Just as the rubber gatherers of the Amazon debased latex with pebbles and gravel, so did the Arabs in the heyday of the incense trade, and to some extent even now, admix varying amounts of fine sand with the gum to increase its weight. Between March and August the trees are tapped by knife incision and a milky juice is extracted, which dries in three to five days.

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FIG. 20 Caravan loading. The three men at the right are arguing about the disposition of loads.

Besides incense trees, a thin and scattered growth of bunch grass, 137
camel's-thorn, and a cedarlike evergreen abundant in some dry wadies 2[illegible]5
is found in the Hadhramaut. Date-palm groves, which cover many square miles, are mainly dependent on irrigation.

SOURCES OF WATER SUPPLY

In addition to artesian water and the water obtained from wells, 312
other sources of supply are available. One of these is the *siquaya*, a small, rectangular, concrete tank with a capacity of 20 or 25 gallons erected along caravan routes near towns and maintained by them as a public service. Another is the well or cistern excavated at the base

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[4] Freya Stark: The Southern Gates of Arabia, [New York], 1936, pp. 10-11.

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312 of a broad, gently sloping bedrock drainage surface. The plateau abounds in suitable rock surfaces, and they serve as catchment areas for occasional cloudbursts. Walls, six to eight inches high, fashioned of closely packed but uncemented rock fragments and slabs, are laid out radially from the well so that surface drainage will converge on it from a wide area.

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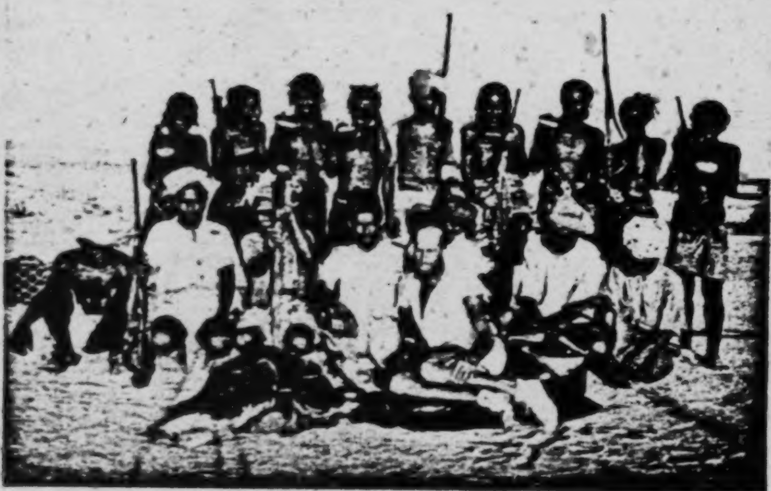

FIG. 21—Bedouins of Wadi Hajr. Note the attire and appearance: bare feet or sandals; short sarong; cartridge belt; curved dagger; long, black, glistening, oily hair; ever present musket. To the stocks of their antiquated guns, goat skulls are frequently attached (as these are thought to provide greater comfort than the original design.)

415
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483 To transport water, Bedouins use bags of uncut goat skins, tied firmly at the leg and neck openings. For drawing well water, the skin is fashioned into a bucket and attached to a rope passing over a pulley in a crudely constructed scaffolding of palm logs lashed together with coconut-fiber cord. The bucket is raised and lowered by donkeys, cattle, or slaves, with the assistance of an appropriate harness. To augment the lifting power applied to each bucket, it is customary to excavate an incline downward from the mouth of the well, equal in length to the depth of the water table, and it is along such a trench that man and beast plod long, weary hours each day. When a bulging and leaking skin has been lifted slightly above the welltop, it is pulled over and lowered into a catchment basin connected with the local irrigation system.

THE CARAVANS

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439 Many Bedouins, not engaged in agriculture or herding, find occupation in the camel transport system of the Hadhramaut. A man

133 During the daytime the heat was stifling, and at night it
was so cold that for hours before the sun rose I was no
longer able to sleep. The interminable, barren plain was
covered all over with sharp, loose fragments of stone,
and among these wound the narrow path along which
from morning to night we steadily wended our way.
312 Drinking water is here to be found in *negābas,* which
are cisterns hewn out of the rock some three meters below
the surface, with a narrow opening. Low ridges lead the
scanty rainfall to the *negāba.* Owing to the narrow
opening there is very little evaporation, and if one has
no rope at hand with a vessel to draw water, this open-
ing is just large enough to admit a man to dip it out.
485 Near the *negāba* there is usually a little square building
made by piling up rough stones in clay, this is called
murabba, and here the midday hours with their scorch-
486 ing heat may be spent. For the sake of safety, our
609 Bedouins avoided the *negābas* as places for passing the
night. In the evening the neighborhood of the bivouac
was carefully reconnoitred, and usually sentries were
posted at night. The authorities at Makalla had given us
for our personal protection two negro soldiers belonging
133 to the famous slave army of the āl-Qa'ētī sultan. •On
May 15 we reached the wonderfully beautiful valley
Wādī Dō'an. The descent of hundreds of meters of this
almost perpendicular wall of rock with loaded camels
was a difficult feat causing some anxiety; but the
Bedouins and their camels reached the valley below with-
245 out a single mishap. As we looked upon this *wādī,*
hemmed in by its high walls of rock, it looked like a
land of magic with its deep-green groves of date palms
[361] and its clay villages with great castles and high houses.
A glowing heat as dry as dust prevailed in Wādī Dō'an
night and day. The bright yellow and deep red bunches
of dates were hanging ripening in the hot wind. In the
shade of the magnificent and remarkably well kept trees
the population were quietly waiting for the harvest time.
144 A great deal of mixture with negro blood (of slaves) has

788 every year pilgrims assemble there from all those regions,
778 and both before and after that a Truce of God prevails
during an appointed period, in this country which is rent
484 asunder by mutual warfare. Never before had a Christian been able to get further than Terīm in the direction of this sanctuary, and without the protection and the planning of the powerful Sayyid Abu Bakr Al Kāf we should not have succeeded. On the way to Qabr Hūd
361 312 we passed the magnificent ruined castles of el-'Urr and Thōbe, and the remains of houses and a cemetery at Makēnun. Qabr Hūd seemed to be a silent and defunct little town, with great houses which are only occupied for three days in a year. In the bed of the *wādī* there appeared to be water here, but before it reaches the sea it is said to disappear underground or else to dry up.
346 The grave of Hūd, the great preacher of repentance in Hadramaut, is adorned with a dome which impresses one by its simplicity and beauty. The other sacred buildings are equally beautiful and are well kept. Where we had expected to find a Bedouin sanctuary which was neglected and primitive and surrounded by mud huts for the pilgrims, we found instead on the border of Arabia's "empty quarter," far away from the world, a sanctuary built and cared for with devotion and great talent.

133 We entered still further into the branch valley of Barhūt, and at the end of this *wādī* we saw at a height of about one hundred meters above the bottom of the valley the dark yawning chasm of the Bīr Barhūt, of which even the ancient geographers furnished descriptions, and definitely anticipated that there must be here the crater of a great volcano. After an investigation of two hours in the dark passages, arches and tunnels of Bīr Barhūt we were able to determine that we have here to deal with an ordinary limestone cave. Nowhere in this region did we see any trace of volcanic action. It was only in the broken ridge of mountains on the coast that we saw many traces of volcanic action. Further north the strata are horizontal; a layer of limestone about

133 311 the amount of evaporation. Accordingly we find in the north–south wadis a continuous belt of cultivations with hamlets of a few houses every mile and towns about 15 miles or an easy day's walk apart. As opposed to this the cultivations in the Wadi Hadhramaut, which runs west–east, are to be found mainly in belts along the northern and southern sides, the south belt being wider than the north, due to the increasing evaporation and lower water table towards the centre of the wadi.

311 361 Except for the hamlets which occur among the fields, the buildings make use of unproductive land, and perch up against the cliff side on the talus slope. This position also carries the advantages of shade together with good siting for defence. Where land is at a premium, villages may be so sited as to become inaccessible even to the draught and load-carrying beasts used in agriculture, and the stables and grainstores are found at the edges of the fields and at the foot of the narrow winding path leading up to the village (Plate 3).

[104] 312 406 241 Water for the permanent cultivations of *dhurra* (*Sorghum* sp.), *dukhn* (*Pennisetum typhoideum* et spp.), lucerne and date palm has until the last few years been drawn by man or animal power, raising a leather bag of water by walking down a ramp away from the well shaft. Nowadays greater use is being made of diesel- and petrol-driven pumps, increasing both the yield and the area it is economical to cultivate. The effect of these pumps, which are available on deferred terms, in lowering the water table will be watched with care. New crops such as potatoes, the brassicas, and sugar cane are also being introduced under the agriculture scheme in an attempt to make the Hadhramaut, if not entirely self-supporting, at least less dependent on its "extra-territorial population."

241 312 361 This limitation does not apply to the flood crops which are snatched wherever possible. Throughout the lower wadi systems there exists a complicated network of deflector dams which have the object of spreading the floodwaters over as large an area as possible, and leading a certain part of them into irrigation channels. Many retaining dams have been attempted, but usually unsuccessfully, as the major structure has been an earthwork with only the spillway of durable construction. In the shallow beds of the wadis running north from the secondary watershed there are many small cultivated patches and groups of two or three fortified houses are often situated where camel tracks converge on water cisterns cut into the rock.

The transition belt.

133 The transition zone between the mountain systems and the sand desert takes a number of forms. North of the Ramlat[1] al Mundafan the Kaukab sandstone plateau overlies the crystalline rocks to the west, and to the east has eroded to become an area of minor plateaus and blocks. Through the wide flat valleys between these minor plateaus runs the main Najran–Dawasir track, roughly north–south in longitude 44° 45′ E. at a general height of a little under 3000 feet. To the east of this track lies the southern section of the Nafud Dahi, running parallel with the road, and rising to a height of 100 feet

104 [1] Ramla(t): a general name for any sand feature. Thus the Ramlat al Mundafan means literally "the buried sands."

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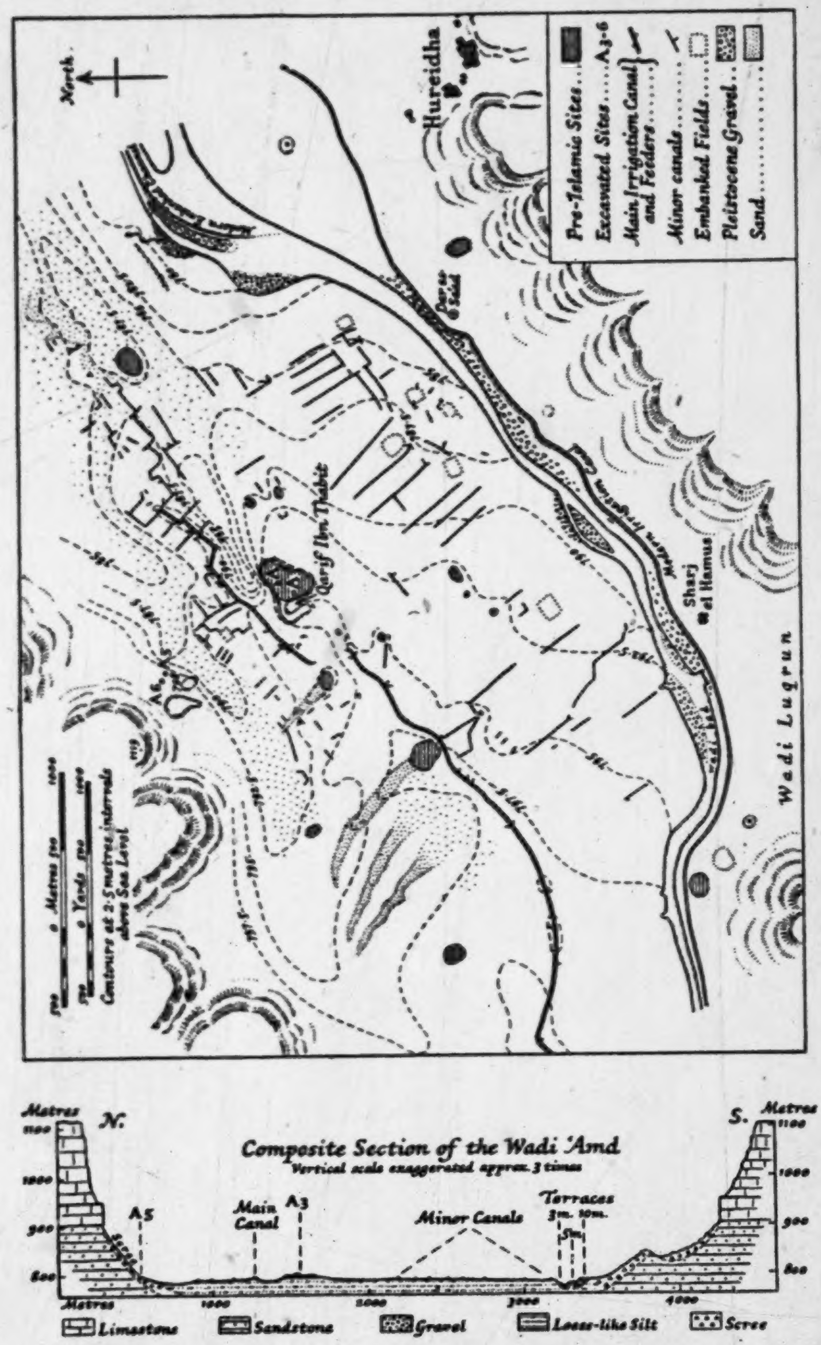
North
500 0 Metres 500 1000
500 0 Yards 500 1000
Contours at 2·5 metres intervals above Sea Level
A6
Qarif Ibn Thabit
Hureidha
Dar es Seiad
Sharj el Hamus
Modern Irrigation Canal
Wadi bed
Wadi Luqrun
Pre-Islamic Sites
Excavated Sites A3-6
Main Irrigation Canal and Feeders
Minor canals
Embanked Fields
Pleistocene Gravel
Sand
Composite Section of the Wadi 'Amd
Vertical scale exaggerated approx. 3 times
Metres
N.
S.
1100
1000
900
800
A5
Main Canal
A3
Minor Canals
Terraces
3m. 5m. 10m.
1000
2000
3000
4000
Limestone
Sandstone
Gravel
Loess-like Silt
Scree

Fig. 2 p·24

172 angles to the main one, and which distributed the water to the field-plots: these are from 4 to 8 m. broad and approximately 2 m. above the general ground-level. The irrigation of the fields themselves was directly controlled by the tertiary system, which consists of short narrow 1-m. ditches, taking off at an acute angle either from the main or secondary channels. The total area covered by this network was about 7 sq. km., and its various parts can be paralleled in the modern irrigation system.

Near the southern edge of this system there are several fields bounded by high silt banks. These are marked on the map by strong dotted lines, and some can be faintly distinguished in Plate 3 on the edge of the valley floor beyond the flood channel. They may be later in date, but in one case a stone inlet and outlet channel was found similar in all respects to the ancient work. The ground-level was here about RL 787 m., the inlet channel at 788·2 m., and the outlet at 787·7 m. Many of these fields have been intermittently cultivated in modern times by means of rainfall only.[1] A scatter of sickle flints and microlithic obsidians was found over the entire irrigated area. It may be noted that obsidian implements were absent on all the Islamic sites examined.

312 [245] 172 At the present day the flood waters are led off the flood channel several kilometres above Hureidha and are carried down by a 4-m. channel running on the south side of the wadi (see Fig. 2) till they reach the palm groves of the town, where they divide and water many thousand palms. As the ancient system was so similar to the modern it seems probable that it resembled it in this respect also. Within the area mapped there was no sign of a supply from the flood channel. The main canal never approached it and the minor ones were actually truncated by it. A day was therefore spent in riding up the wadi in the hopes of finding the take-off of the main pre-Islamic canal. Traces of it were followed for 16 km. but nowhere did it approach the present flood channel till the latter swings across the valley floor towards the north cliffs (Plate 3). Here a well-defined ancient canal is truncated by the wadi bed. It has 2 m. high gravel-covered banks, 30 m. apart, and can be clearly traced for 80 m. or so in an eastward direction. Beyond this point there is no sign of it, and here may therefore be the actual take-off of the flood waters which fed the ancient supply.

Possible confirmatory evidence was obtained about 1 km. upstream. Here there is a remnant of a V-shaped dam which projected from the southern bank part-way across the stream and would have served to divert the current to the entrance of the channel (Plate 11). In the bed itself only the foundations of this dam remain as a band of stones 3½ m. broad, wedged on both sides by larger, more regularly laid material. The downstream arm is 40 m. long and the upstream one 63 m., with a base of 81 m. along the wadi bank. The upstream branch springs from a base that wedges into the gravel of the bank for 2·6 m. The sloping sides are composed of wedge-shaped limestone blocks: eighteen courses high, probably the full number, are preserved on the downstream side and fourteen on the upstream. The infilling is of gravel. No sign of inscriptions or well-dressed stones were seen, and the age must therefore remain conjectural; but local tradition knows nothing of its history.

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[1] Mr. Ingrams notes that in the Wadi Maseila the fields are constantly changed—'Hadhramaut' (Colonial Office Report No. 123, 1937, p. 59).

484 passes Gheil Ba Wazir, a well-built walled town and the headquarters of the
438 Hamumi tobacco-growing industry. The most skilful diggers of wells and
[463 irrigation channels and tunnels come from this place and the system of water
512] which irrigates the tobacco plantations is extremely thorough.

361 Shihr is an ancient town. Its present walls are not old but there has been
438 a town on this site for at least eight hundred or nine hundred years, and the
529 principal coastal town of the neighbourhood has been hereabouts for a great
deal longer. Mukalla of course is much newer. Shihr is an important fishing
centre and vast quantities of fish are brought in daily to be sun dried for up-country
consumption or eaten fresh locally. Weaving, dyeing, and mat making
are minor but locally important industries. About 7 miles from Shihr is
Tubala which has been built on a hill over sulphurous springs. This place
has won local renown for its sulphur baths and quite a number of rheumatic
sufferers have visited it. Hami, farther along the coast, has an even larger
number of hot springs, but the picturesque site of Tubala suggests the possibility
of a Spa hotel, easily accessible by car from Shihr, and we have rather
prematurely considered the positions of the Pump Room and Concert Hall
in the Spa Gardens. In view of the progressive ideas of His Highness and the
Seiyids in the interior, the provision of a few hotels is not an unlikely development
before long, and the country will be an ideal winter resort. Shihr is the
[504] principal market for the whole of the eastern Hadhramaut, including all the
Kathiri country, and its imports by sea are very considerable, although it is
worse off for harbour facilities than Mukalla, as it is nothing but an open
roadstead and has no jetties; but apart from the local Aden steamers even
ocean-going steamers call there as well as at Mukalla.

619 Most of the carrying trade is in the hands of the great Hamumi tribe,
438 which has no real villages of its own and extremely few dwelling-houses, but
which owns a very large number of camels. The chief of the tribe also owns
a great quantity of date palms in different parts of the Hamumi country. I
have recently done a considerable amount of flying over Hamumi country
which extends over about 3000 square miles and is now well known to the Royal
Air Force.

487 When we first went up the road to Tarim in November 1936 the car road
101 was of course not completed and some 20 miles northwards from Shihr
438 there was a gap which had to be traversed by donkey through Ma'adi, the
142 country of the Ba Hasan Tanbulis who had steadfastly resisted the attempts
of Seiyid Bubekr and the Al Kaf family to complete it. These Ba Hasan
[244] Tanbulis are allied to the Hamumis and are nicknamed Tanbuli because
they are the only people in the whole of the Protectorate who grow betel nut
and pepper vine, though Ibn Batuta speaks of it at Dhufar a good deal to the
east, and I expect it exists there still. There is nothing much in the countenances
of the Ba Hasanis to make you think they are related to the Hamumis,
for as a whole the Hamumis are fine-looking men and uncouth is a mild word
to describe the general run of Ba Hasanis. Hamumis themselves have said
to me that they are not human beings, and an Arab friend, when we were
looking at some of the more primitive of them, said to me: "They only want
tails and you would say they are monkeys." However they grow on you as I
daresay monkeys do after a time, and I am now quite fond of them. When

WHEN

we first went up there they[1] charged us two dollars for every skin of water we 435
took and a dollar for four coconuts, which we were reduced to buying as we 609
had no other food and were stuck for a couple of days waiting for cars from the Hadhramaut. On that first visit one very nearly shot me for trying to take his photograph, but now he is more than ready to pose. During the two nights we were waiting for cars the Ba Hasanis were a little nervous as they [7120]
had murdered some one shortly before and were expecting an attack, so we had to build rough stone forts. When we had lent a hand we suggested that we should be paid for our labour as they had charged us for everything, but they did not like the idea and spent the night on sentry go droning monotonously to keep themselves awake. One good lady of the Ba Hasanis dresses 135
as a man with dagger and all, and likes to be called Sheikh Salim. She is the 814
only one of the women who does not veil. The habit of veiling varies a lot 362
through the different tribes of the Hadhramaut and quite a number of them go uncovered.

When the peace was established it became possible to complete the Al Kaf 491
road and it was opened by Sir Bernard Reilly in July last. It is now a toll 651
road administered by a Board and half its revenue is being accumulated for 444
capital works and improvements and half is being spent on maintenance. The maintenance expenditure is becoming very heavy as the daily buses do a lot of damage. The fees for the use of the road are designed not only to give revenue but also in conjunction with minimum fares to protect the Badawin camel traffic. Indeed goods are not allowed to be carried by road unless they are perishable, too heavy for camels, or urgent, in all of which cases the freight charged has to be higher than that which would be charged for camel transport.

It is about nine and a half to ten hours' solid driving from Shihr to Tarim, though of course one usually stops for a meal and that makes it about twelve hours. After leaving Ma'adi the road runs along the well-named Jol al Fiqra or Backboned Plateau, a ridge from which magnificent views to the sea 20 to 30 miles away and over deep wadis are obtained. After that the scenery tends to become monotonous, particularly when you have done the drive a dozen times or more, as it dodges endlessly round flat topped hills and wadi heads, and after the *'aqaba* of Ma'adi the remaining 130 miles or so are a series of levels from which you climb or descend by quite modest hills. Two hours on from Ma'adi you come to Reidat al Ma'ara, the country of the 101
Ma'ara tribe, a collection of small scattered villages in country intersected 312
by shallow wadis which offer some chance of cultivation. There are some 691
wells, but the people depend very largely on *qarifs*, open water-holes built to collect the rain-water. The Ma'ara, who are friendly folk, are also distantly related to the Hamumis. They never give any trouble though there are one or two of them who are terrific litigants, and are always coming to see me in Mukalla or the Hadhramaut about cases which I have had investigated by several independent tribunals with invariably the same result. Most of these squabbles are land squabbles and that is a source of the greater part of the litigation in the Hadhramaut.

Reida is the place where one generally stops for lunch, as it is very nearly 000
half way. The pleasantest place I think is under a tree near one of the *qarifs*,

[1] [THE BA HASAN TANBULIS -- ANALYST.]

18:Ingrams G-3 (1934-36)1938 MM2 Hadhramaut MM2

130 and here we stopped on our first journey up, dispossessing a large band of
136 monkeys. This was the first time I had seen them so far east, though we have often seen them north of Aden. As a matter of fact, one rarely meets mammals apart from gazelles and foxes in the Hadhramaut, though lately I was offered a hyena pup in Tarim, and there are wolves, ibex, and oryx. Others prefer
130 for lunch at Reida a house not far away, where if you give an order in advance you can obtain quite well-boiled rice and boiled meat. Our superior friends in the Hadhramaut have named the place Shepheards, principally I think because you are always overcharged there. The first time we passed through the village somebody asked my wife for medicine and was given Epsom Salts. Crowds then came out and stretched forth supplicating hands which were all filled and in this way a pound or two was distributed, but there has never been any ill-feeling about it and relations with the tribe have been uniformly
623 friendly. They have a large tree which is known as the Sanctuary, and under
728 it all the important tribal conferences are held. Here I sat with the elders on a subsequent visit and they signed the general Hadhramaut three-years' truce.

[491 A little beyond Reida you pass into Kathiri territory belonging to the
508] Al Jabir, and the road passes near Risib, where there is a landing-ground.
721 The people of Risib have had a very bad reputation for caravan looting and
574 holding up cars; indeed they fired on cars before ever we came into the
312 country. They were punished for an offence of this nature and are now genuinely among our best friends. My wife and I have stayed with them at their invitation and they entertained us lavishly in their simple way. They told me that they had always believed themselves to be under the protection of the Sultan of Turkey; now their only request is to be helped to find water, and I very much hope that before long it will be possible to help them, as they depend entirely on rain-water and when their pools dry up they have to leave their homes and wander away with their stock elsewhere.

361 The last sign of permanent life on this road is a little beyond Risib at Heru,
312 where there are a few Sheikhs who have some popular water-holes which
223 last longer than most others on the road and are generally much surrounded with stock. It was a wonderful sight near Heru last year after the heavy rains to see the shallow wadi green from side to side, winding away in each direction apparently fully cultivated. The people never cease to talk of the blessing of peace through which they are able to cultivate far more than they were before, and those heavy rains are universally attributed to the mercy of God manifested as a reward for the peace.

491 From Heru to Tarim takes four hours and the road is absolutely desolate.
487 Caravans follow a wadi route into the Wadi 'Adim where there is water, for there is not a drop to be had on the route that the cars have to follow, and of course it is usually on this part of the road that one has breakdowns.

I arrived at Tarim at 8.15 in the morning. The '*aqaba* leading down to Tarim is one of the most remarkable engineering constructions in the world. People who know say that no European engineer would attempt it. It consists principally of hairpin bends which you have to reverse to get round, and
609 parts of it have gradients of about 1 in 3 or 4. If you fire a rifle at the top of the '*aqaba* it lets Tarim know you are coming and the whole place troops OUT TO MEET YOU.

WE PUT THE GARRISON INTO THE

grass hut, as the *murabba'a* was occupied by a woman who had been bitten by a snake and the Sheikh asked us not to disturb her: it was part of her treatment that she should not be seen. A thin trail of ash had been sprinkled round the building to keep other snakes away. 752

During the day we collected other 'Abdulla bin 'Aun who came and watched us from a distance in little groups. Somehow they seemed to be fascinated by us, for although they would not come when we shouted to them, they made no attempt to move or to resist when we walked over to them and told them to come along with us. Few of them were armed, and neither were we until the garrison came along. There were a couple of wells in commission, and I was told that at one time there had been as many as eighty-one. Some of the Badawin showed us on the wall of a cliff little columns of holes bored in soft stone. You counted up the holes and then stepping that number of paces from the column found yourself on a buried well. OOO O

Having explored the neighbourhood of the fort we went to see the site for a landing-ground which had been previously decided on from the air. Unfortunately it had to be at some little distance from the fort—2 or 3 miles—but it was a marvellous landing-ground and greatly pleased the Royal Air Force when they came along later in the day and flew Seiyid Bubekr and myself back to Seiyun.

On later visits I had the opportunity of seeing all the surrounding country from the air, and I was struck by the truth of the saying that Al 'Abr is the "Key of the Hadhramaut," for behind the mountains tracks radiated out in all directions to Nejran, the Yemen, and Shabwa and the Western Aden Protectorate. From Al 'Abr eastwards there was only the one track. I have visited Al 'Abr five times on the ground and passed over it many times by air, and on each occasion I have been struck by the large number of caravans which halt there for water. For a week or two after our occupation there was some falling off, as the Badawin were not certain of our intentions, but now it seems that far more come than before; they have a sense of security which was previously lacking when the Al 'Abdulla bin 'Aun were constantly looting them. My own belief, which is shared by responsible opinion in the Hadhramaut, is that before long a town will spring up there, as it forms an ideal place for a market and there is plenty of good water. The wells are not much more than 20 feet deep, cut through the soft limestone, and as soon as you draw the water out it runs in again in such a way as to give you the impression that there must be an underground river. On the first visit I took there a party of skilled builders from Tarim and they set to work at once to rebuild the fort. They also opened another well or two, and if we can find the money we shall open more, for these increased facilities are much appreciated by the Badawin. 8/21

Amongst the visitors who come are a large number of women. Thereabouts they are unveiled and talk fearlessly and freely with you. I found these girls very charming and full of courage. They thought nothing of journeys alone with camels across the desert, from the Jof for instance, and it is the women throughout the Hadhramaut who appreciate the peace more than any one. They have often said that in the old days they always lived in fear that when their menfolk parted from them they might not see them again. 562

exceeding 40 cows, 20 cows are the limit, may be a camel and a few sheep as well. In the case 782
of a poor man, perhaps a single cow or sheep. Two cows are slaughtered near the grave of
the deceased on the day of burial (*i.e.* death generally), if overnight, a third cow. Two 556
nights are allowed to pass and on the third night a cow is slaughtered. This is called *khutum.* A further period elapses varying according to the economic condition of the deceased's relatives. It may be so little as a fortnight or so much as three months when the big sacrifice takes place, may be of 10, 15 or 20 cows respresenting half of the deceased man's herds. This is called *yom el nahaira.* Both *khutum* and *nahaira* are performed at the place where the man lived and not upon his grave. More cows will be sacrificed by relatives and friends of the deceased towards whose families in his lifetime he has acted similarly. This vast slaughter attracts the whole neighbourhood and the sectional tribe of the dead man divide up the flesh for themselves, and go away under their great burdens. Visitors from other tribes have no such rights, but partake of the feast of cooked meat for which one cow will have been roasted for the occasion.

There is a widespread belief in *Subiro, i.e.* spirits of the departed and their power for good 769
and evil. In the Wadi Rizat I came upon scraps of food and tobacco in the pool beneath 776
where the spring comes gushing out of a cavern. The locals emerge at night to throw morsels on the ground or into the pool shouting, " We are your sons and your daughters—don't harm us. Be awake so that we are not harmed by *Jins* (human kind) or *Jinns.*"

Nughush they call this casting of bread upon the waters. In theory these spirits brood over running water only: they are amenable to kind treatment and treat mankind in the same way that they are treated by mankind.

The people of Jurbaib, lower down, sacrifice a cow before the harvest after it has made a 782
circuit of the crops—its blood being drained into the irrigation ducts. Bits of its flesh are 769
cast amongst the growing grass.

This spring of Rizat was in old days the subject of a notorious government case. Bait 312 ●
Zaiyan, a section of the Shahara, claimed the exclusive right to practise *nughush* in it. The [619]
Qara overlords who wished to share in the benefits of ghostly grace demanded to go " fifty-fifty " in the sacrifice. The government wali, in order to make government itself a partner in the scheme and share in the crops of the plains, decided that both parties would receive exactly equal quantities of food from government so that there should be no cheating. But in later years the slave soldiers of government, becoming overbearing in their treatment of Bait Zaiyan, the latter called upon the departed spirits of their forefathers who promptly made the water run up hill, so that the crops in the plains withered and died, whereupon government's share lapsed.

Cases of virtue held to be latent in certain dying animals I met with on several occasions. 825
The highly valued contents of the antelope's bladder for man, and its stomach for camels,
may be purely a rational custom, but that cannot be said of a raven I had shot. While it lay 789
dying a Badu asked for its heart, which he proposed thus to eat raw and palpitating. This 754
was, he said, a protection to his own heart from evil influence, its bile also which he proposed mixing with kohl with which to annoint his eyelids. The Shahari who killed my biggest cobra,

22: Reilly G-3 (1933-41) 1941 MM2 Hadhramaut MM2
Middle East Islands MZ1
Socotra

N

Where the slopes permit, the sides of the hill are 241
terraced by the industrious inhabitants to grow crops and, in the higher 245
altitudes, the excellent Mocha coffee for which Southern Arabia is famous. Villages appear in unexpected places, built of mud brick in N 361
the low country and of stone on the mountain-sides and hill-tops. 349
Among these habitations are seen always the square towers, or *dars*, and the little mosques or whitewashed shrines that are characteristic of the Arab villages.

The aspect of the country varies in its different parts. Immediately N 361
to the north of Aden is the large and fertile oasis in which stands the 312
capital of the Sultan of Lahej. It is irrigated from the bifurcation of 133
the Wadi Tiban that brings water from the mountains and then disappears in the sands near Aden. To the east and west of Lahej are desert strips, but beyond are the Subeihi hills and valleys to the north-west, the rugged Haushabi country, and the pleasant district of Dhala in the Amiri highlands to the north, and the lofty mountains of Yafa to the north-east. Thence to the eastward a steep escarpment spans the country like a rampart, and is crowned by the fertile Audhali plateau 7,000 feet above sea-level. Farther east, beyond another stretch of rough, mountainous country, is the fantastic and barren *jol*, reminiscent of pictures of the surface of the moon. To the north of this strange and desolate area, and in striking contrast to it, is the wide valley of the Hadhramaut, with its chain of towns and villages, its skyscrapers, country houses, palace and gardens. Beyond again, away to the north, lies the edge of the Rub' al Khali, the Empty Quarter, with its sea of tumbled terra-cotta coloured sand dunes stretching into the distant interior.

On the sea coast of the Protectorate there are at intervals fishing villages and little ports, and about 300 miles to the east of Aden stands the picturesque town and port of Mukalla, the capital of the Quaiti Sultan. Protected by a steep background of rock, its white houses cling to the shore, and its appearance from the sea is singularly attractive. The town of Shehr lies on the coast beyond it, and eastward again there are more coastal villages, of which Qishn, the capital of the mainland territory of the Sultan of Socotra, is the most important.

The large island of Socotra, situated about 500 miles to the east of N 131
Aden, forms part of the Protectorate. It, too, is a mountainous
country, but, owing to its greater rainfall, it is much less bleak than the S
neighbouring mainland. It has a good deal of varied vegetation, and is [illegible]
noted for its so-called dragon's-blood tree, the sap of which is exported 137
to India and elsewhere to make a rich purple dye. Socotra has also a 000

000 of the city. Before the gate is the Wādī Seded, where the sea
484 has penetrated far inland and formed an inlet. Here on the
361 beach the caravans camp as they travel to and from the
231
492 interior. Hundreds of camels are kneeling in great circles,
eating the food that lies in the centre. Other camels are being
bathed and scrubbed down with sea-water, while still others
are protesting with gurgling snarls against the treatment of
some skin trouble or of big open wounds. There are donkeys
here and there amongst them. Bedouins lie asleep wrapped
[264] about in their cloaks or sit round a small fire eating out of
wooden bowls their porridge of crumbled bread mixed up with
a little fat. Some are busy with the difficult work of loading:
after the freights have been weighed by lifting and then
[372] divided, they are fastened on to the pack-saddles. Children are
collecting into baskets the camel's dung which is of great
value as fuel. The ground is swarming with the so-called
camel-louse, which is really a sort of tick. The penetrating
odour of the camels' urine and sweat hangs over this wide-spread, permanent bivouac.

487 We go inland along the bank of the Wādī Seded, which is
312 here filled with sea-water, so as to cross, by making a big
bend, behind the 1800 feet high rocky ridge of Makalla. On
the left of the road, only a few miles from Makalla, there are
groves of palm, with the white summer quarters of the Vizier
and of the Sultan. Here is a spring from which, by means of
a thin, iron pipe lying on the ground, water is carried to
Makalla to provide the town with drink.

361 Two hamlets, el-Baqrēn and Baqērēn, with some cultivated
518 fields, lie close to the frontier of the Sultanate of Makalla.
There are two fortified towers on the road manned by soldiers,
and not far beyond Baqērēn there stands a whitewashed piece
of rock. Against the high wall of primary rock, rising up each
side of the road, two white marks have been made to show
even in the mountain region, where the land is at peace and
where at war. No vendetta may be carried on nor ancient
feuds settled by arms in or around the town.

A little way beyond the boundary-marks, about 20 Bedouins 578
have made a bivouac under an overhanging wall of rock. On
the top of the rock on the other side of the road are their
outposts, who keep a sharp look-out for caravans passing
along the high road. One caravan that had carried out a ven-
detta is now in safety in Makalla, a willing prisoner. We only
realized later that we should be the ones to free it from that
imprisonment.

The road winds through steep rocks and at last zigzags up 361
to a plateau which seems to be of coral limestone formation. 245
The hamlet of Maᶜōṣ lies in a rocky valley a little in front of the 312
plateau; further up, in a longer valley, there is a larger village 417
called el-Ḥarshīyāt. From the plateau one can see, far away
to the left, the village of el-Ḥawwāᵓ. We are soon past the rock
massif of Makalla, and the road descends to an inlet of the
sea which has run far inland, whereon lies the village of
Buwēsh. Papaya, bēdān and bananas are planted here along
the edge of fields of lucerne. In the wādī that runs into the
sea near Buwēsh there are, higher up, more date-palms and
other fruit-trees, plantations which are the property of the
Vizier and of other rich men of Makalla. The wells from which
the fields are irrigated are not deep here, only 20 feet. On the
coast between Buwēsh and Makalla lies Rūkeb. The road
mounts again, runs for some time over coral formations, and
then again drops to the Wādī Feleq, into which, far inland,
the sea-water runs and which, consequently, is more like a
small river. Baṣra lies a little higher up this wādī. At the edge 137
of the stream we find much *asal*[1] growing. The coral lime- 487
stone terraces on both sides are fairly high. The road runs
farther over level land where jathropha shrubs grow; whole
patches, also, are covered with incense bushes, which are
recognizable by their scent and have either no leaves or very
small ones. Some tall acacia bushes with elongated blossoms
stand out here and there amidst the brownish shrubs which
grow upon the bare rocky ground, strewn with pieces of coral.

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[1] A kind of big reed.

361 311 We reached the little village of Laṣb within an hour. It lies just at the point where the gap narrows and the mountains on either side of the wādī become higher. In the perpendicular wall of rock has been cut a conduit, by which the water of a rivulet, which soon vanishes again, is carried to the palm-groves and *dhura* fields of the villages. We leave the path to seek refreshment among the *dhura* grown to more than a man's height. At the edges of the fields bananas and papayas are planted. The inhabitants of the village do not show themselves. The castle-like dwellings of mud stand high above the cultivated land, against the mountain-wall; perhaps our movements are being spied upon from behind the small, dark window openings.

361 312 Beyond the village, Wādī el-Laṣb narrows and the walls become steeper. The water-conduit looks like a thick, green roll clinging to the wall, with maidenhair fern and other moisture-loving plants growing in abundance. The brook with its crystal-clear water soon appears; where the water is dammed up in basins we see shoals of little black fish and many black frogs. The rocks are full of deep holes. The piled-up strata slope down towards us. The rock-wall hangs over us as we go further up the valley, and a thick, hard crust projects high above our heads over its edge so that we could walk in its shadow. Here we decided to wait for the camels; our companions immediately fell asleep, while we sought out a spot in the rivulet where it had widened out to form a pool and we bathed there. It is true, the little fishes came to see whether we were edible, but that did not spoil the unexpected, deep satisfaction of a bath in the wilderness of Southern Arabia. The water, certainly, is warm, but the dry wind has a refreshing effect as soon as one is out of the water and lets oneself be blown dry. Further inland the water was so warm that it was only enjoyable to bathe in it at night.

000 When the camels and the donkeys were at last to be seen, we went on further into the rapidly ascending wādī. We soon had to do without the pleasure of the brook and its thickly-

The way winds upwards out of the wādī; the mountains 080 here are no longer so precipitous and it had been possible to cut out a path on the slope about 300 feet above the bed of the wādī. It is a primitive path, but it has been improved here and there. We are going north-east and have the sun obliquely in front of us; it is a hot, constantly ascending stretch of road. Already at half past seven the Bedouins wanted to make a halt, but we prevented this by vigorous opposition, and it was postponed till 11 o'clock. We have passed a large well of water, 361 el-Ghuḍūḍa, and see Zemān el-Kebīr on our right, lying close to the mountain slope. There are date and coco-nut palms, papaya and banana trees in the midst of neatly cultivated fields of tobacco. We make a halt at the next village, Zemān eṣ-Ṣeghīr, and find shelter against the merciless glare of the sun, in an empty stone building that seems to be intended for passing caravans.

Here we first made acquaintance with those pious institu- 312 tions for the protection of travellers against thirst, the *siqāyas.* 271 Later on we were to travel from *siqāya* to *siqāya* and learn 4/ 85 to look on these white, beneficent landmarks in nearly waterless stretches of country, with a greater thankfulness than at the beginning. We were only just at the edge of the dry, rocky table-land and could still give ourselves the luxury of a hygienic, critical standard in the matter of drinking-water. The *siqāyas* are small buildings, generally five feet square and six feet high, with a dome-shaped roof, made of natural stone or dried mud and whitewashed. About five feet from the ground there are square or triangular holes, through which by means of a cup one can scoop water out of the masonwork cistern, about six inches deep, which has been placed at that height in the *siqāya.* The filling of the cistern is attended to daily by one who is paid for doing so by the pious foundation (*waqf*) endowed for that purpose. In one of the openings in the walls of the *siqāya,* there is to be found the half of a coco-nut shell, a rusty tin, or an oblong wooden cup, with which one scoops out the water and from which one

312 drinks. One must accustom oneself as soon as possible to the
271 fixed habit in this country, of drinking one after the other out
485 of the same cup or bowl. Even among the very rich and the Sultans, the big earthenware drinking cups are passed from guest to guest. One sees the soldiers and slaves drink out of them too. The water in the *siqāyas* is often dirty, with a variety of odours and tastes; it also swarms with larvae and the like, but thirst soon teaches one not to notice them and the aversion diminishes in course of time!

In Zemān eṣ-Ṣeghīr we were able to buy milk, buttermilk (here called *rūb*), lemons, coco-nuts and bananas, but at high prices.

361 In the afternoon we proceeded and in a short time arrived
311 on a plateau, fairly thickly covered with tufts of grass and low
shrubs, where two villages, el-Ghēḍa and el-Ghiyāḍa, lie
among well-cultivated fields of tobacco, surrounded by a small
342 grove of date-palms. The mayor of el-Ghiyāḍa is related to the
439 family of el-ʿAṭṭās; we were therefore desirous of calling upon
him. The door of his simple, mud, mayoral residence was
decorated with particularly fine carving. We were received in
a little, dimly-lighted room that served both as a place for
storing tobacco and as a reception-room. The mayor had been
in Batavia for seven years and had there acquired some wealth
in the *batik*[1] trade, which a son is now continuing. As soon
as I was informed of this, I proposed to converse in Malay
instead of in Arabic. Our host eagerly agreed and we were
[272] soon deep in reminiscences of Java. Meantime coffee was
prepared, consisting for three quarters of ginger and for one
271 quarter of coffee, and a great earthen bowl of cold water
passed from mouth to mouth. These porous, unglazed bowls filled with water are placed in the small window openings, and the hot outer air causes the water which exudes through them to evaporate, thus cooling their contents. One finds the same

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[1] *Batik* is the name of the specially Javanese art of decorating and dyeing pieces of cloth used as garments. The thus decorated pieces are also called *batik*.

system of drinking- and at the same time cooling-bowls, 271
among poor and rich alike.

Our host spoke with longing of beautiful, rich Java and of 167
the good years that he had passed there, and it was obvious that he would have liked to return there but for leaving his family behind, for the Ḥaḍramī woman does not leave her country with her husband. It was clear, from the friendly farewell, that I had not been wrong in thinking that my years passed as a civil servant in Netherlands India would facilitate my travels in Ḥaḍramaut.

They all went a little way with us to see us off and were 138
photographed at their own request. We followed the broad 312
sēl-bed [1] crossing the plateau surrounded by terraces of about
300 feet high. There, where the plateau ends, lies, at a height of 50 feet the village of Ḥimem on a hill at the edge of the wādī to which it gives its name. At the foot of the hill, there are very tall coco-nut trees, the last that we shall see for the time being, for the altitude is already 3000 feet. A conduit full of water, fed by little springs at the edge of the wādī, irrigates fields of *dhura* and of neatly-planted and well-cultivated tobacco. It is true that it is not first-class Ḥumūmī tobacco that is raised here, but even so it commands a good market price.

The evening falls and we are obliged to camp soon after 133
leaving Ḥimem. The valley has here penetrated into the sand- 271
stone and the conglomerates under the eocene limestone. Here at a height of 3000 feet the nights are already cold. According to our Bedouins, who are good water-tasters, the water also improves in proportion as one gets further away from the coast; all salt and bitterness gradually disappears from it.

In our bivouac at Ḥimem we had to put away again a great 136
harvest of plants and insects; the swallow-tail butterfly was also found here.

The mayor of Ḥimem came to visit us in our camp. He told 249
us that his village of 200 to 300 inhabitants grows tobacco,

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[1] The bed through which the water flows for a short time after rain.

000 the fairly steep slope of Wādī Ḥimem, high above the *sēl*-bed. We looked down on the fresh green of small trees and shrubs; a shepherdess with her flock of goats was occasionally to be seen amongst them. The path then dropped down towards the wādī; walking over the grey-white boulders and under small acacias with scanty foliage, we made our weary way to the end of Wādī Ḥimem, in and beside which we had been journeying for days past.

4. THROUGH WĀDĪ LUṢŪB TO THE GREAT ROCK PLATEAU. THE CAMP AT EL-ḤISĪ.

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●312 We came out onto a high plateau, but soon entered the wide, shallow bed of Wādī Luṣūb, which was fairly well covered with vegetation. Small, poor houses lie scattered here, like cubes of stone, with very primitive little gardens. The people live principally by breeding sheep and goats. We made our quarters for the night just beyond the houses, forming the hamlet of el-Ḥisī, beside a large well of masonry within which one descends by stone steps to the surface of the water. The well had been dug in the *sēl*-bed and was therefore protected by a thick wall, as high as a man, against the water floods which appear after rain. In el-Ḥisī lived the family of Mautor, the leader of our caravan, and hence the dawdling which characterised this day; on no account were they prepared to go beyond el-Ḥisī.

246
262 All bickering was forgotten now and our Bedouins radiated contentment and willingness. The people of el-Ḥisī set to work cutting up food for our animals, all the inhabitants came to have a look at our camp, and, afterwards, Mautor took all his comrades with him to feast in his village. He brought us, beforehand, a cloth full of *nibq* fruit. The *nibq* tree, also called *sidr* or *dōm*, is of intrinsic importance in those parts of Ḥaḍramaut where there is too little water for the cultivation of the date-palm. There, wherever one is dependent on the *sēl*, the water which only comes after rain, and where the subsoil

24:Meulen and Wissmann T-3 (1931)1932 MM2 Hadhramaut MM2

● 312

Bēn el-Djibāl. Our party resting at the first *murabba'a* alongside the first *neqāba.*

137

On the top of the Kōr Sēbān .... a solitary dragon's blood tree.

p.48 (B)

137 globular shrub, an *euphorbia* which is *not* succulent, but has a green bark. Although this plant had flowers and fruit, it had, at the moment, no leaves. It occurs frequently.

● 312 104 From the top of Kōr Sĕbân there stretches westwards a slightly-furrowed plateau, intersected by good camel paths, and where cisterns for catching rain-water, called *neqābas*, have been made. The *neqābas* are cellars cut out of the limestone rock, with a narrow, round opening, three feet in diameter, and a shaft which soon broadens out to an underground cavity nine to ten feet deep and fifteen to eighteen feet in diameter. The rain-water is led there by means of low dykes. The narrow opening prevents much evaporation, and the water in the cellar remains cool. In suitable places, where there is much traffic, one finds as many as six to ten *neqābas* close together. The water in them can remain there for quite three years, but the disadvantage is that it generally has a brackish taste. There are also often simple, small, square buildings close to the *neqābas*, with walls of natural stones, loosely put together, and with flat mud roofs. They are called *murabbaʿas* and serve as shelter for travellers and their animals against the fierce sun by day and the cold wind by night. Moreover, one often finds ramparts and fortified observation posts close to the *neqābas*, recalling the many wars taking place in this barren and unpopulated land.

The *neqābas* make it possible to travel over the dry, stony plateaus. Were they not present one would have to follow the winding bed of boulders in the wādis or else descend into them frequently and with difficulty to fetch water. Now one journeys from *neqāba* to *neqāba*. Occasionally one is found empty owing to the long-continued drought and that causes great disappointment, but one always comes upon another before long. The Bedouins of these districts generally know quite well what the condition of the different *neqābas* is and settle their route accordingly. The *neqābas* take the place of the *siqāyas* in the wādis and in the mountains not of table

formation. They belong to the plateau called *djōl* (جول), 312●
lying between the mountainous coast region and the great 104
depressions of inner Ḥaḍramaut.

6. THE DJŌL.

Our way now led over the *djōl* as far as Wādī Dōʿan. The 133
djōl consists of vast table-lands of reddish-brown limestone, where flat-topped, horizontal mountains, the remains of old, still higher plateaus, stretch like long wings. The wādīs are cut deep into them. We also often descend into flat, basin-shaped wide depressions, passing over the crumbling edges of the plateaus, and afterwards have to climb laboriously up again, towards the boulders at the edge of the opposite plateau, quite half an hour away. Wherever one looks one sees the same long, horizontal lines of the table-mountains, with everywhere the forked, precipitous incisions made by the wādīs. The plain is strewn with sharp fragments of limestone, dark-brown and black in colour, which ring like metal whenever the passer-by kicks pieces of them together with his foot. Vegetation is al- 136
most absent. Towards the edges of the plateaus, against which 137
clouds sometimes seem to break, there are a few shrubs of small, crooked, gnarled acacias. One finds no trace of animal life except a few lizards and sometimes a solitary bird. It is very warm on the *djōl* during the day, the sun scorches, and the wind is hot and dry. During the night this same wind is cold and penetrating, so that one wakes up and remains awake longing for the warmth of the sun hours before it rises; then an hour later it is torment again from the heat.

The endless monotony is the great enemy of the traveller 000
over the *djōl*. The light is fierce and is reflected a thousand times in the metallic shining stones. The narrow camel path winds like a smooth and shining ribbon through the unruffled and almost unchanging expanse. The stones have been pushed aside by the feet of the camels which, in the course of so many years, have passed that way. The limestone of the plateau

this, there were the remains of the houses which these people 172
had inhabited in the days of the preaching of Hūd, the prophet of Allah. It was arranged for the caravan to go ahead as usual and for us to rise early and set out on a rapid excursion to the ʿĀd remains, without losing a day of the time on our schedule.

The night in Bureyyira seemed very cold, yet in the morning 060
the temperature was only 18° C. The night-wind and the great contrast with the heat of the day make one feel the cold very much. We set out at 5 o'clock under the leadership of Aḥmad and the protection of the soldier ʿUbēd. We went first by the road on donkeys for some hours and then, leaving the animals with their attendants behind us, we struck into a side-path that led over massive rocks to the source of Wādī Ghār. The wādī is very soon deeply hollowed out and we climb with difficulty high up along its steep wall, but luckily that does not last long, and we approach the wādī-bed. Occasionally our way is blocked by great, greyish-white boulders. All sorts of interesting plants grow against the wall of rock as, for example, *anisotes*, which is also to be found at el-Ḥisī. We followed the bed of this narrow, deep wādī for a long time, and our eyes were refreshed by the colour of many an acacia. After stren- 153
uous climbing we reached the broader Wādī Thiqbe, where 312●
we had to circumvent immense blocks of rock. The *sēls* must have formed waterfalls here by which deep basins have been hollowed out of the rock, which in several places still held some water, though rather thick and brown. Now that the sun is so high that its rays reach the bed of the wādī, the temperature rises very quickly, and the prolonged and hard exertion makes us very thirsty. The water-supply that we brought with us is soon exhausted, but these basins of brown water arouse aversion. There is some shadow given by a number of trees, among which are some large *nibqs*, and that is the spot where we rest. Aḥmad really knows the way well. He brings us to a deep pool, hidden from sight by rocks, which has straight
walls and is quite full of brown water. Though we dare not 825

farewell to Bā Ṣurra, his sons and grandsons, and then we 000
start off again on donkeys through the glorious groves of
date-palms to Huwēbiya, three quarters of an hour distant,
where the Vizier of Makalla has estates, now managed by his
son Sālim.

We ride most of the way on the tops of the mud dykes 312●
which lie alongside of the irrigation canals. The palm-groves
are intersected by many deep channels which distribute
the water from the *sēl* over the land under cultivation, and
whose high, though narrow, mud dykes are made to protect
the plantations from damage by the swiftly flowing water. The
actual *sēl*-bed is dammed, here and there, between barrages
of piled-up boulders.

The Vizier has a fine house, well situated close to the 000
green wādī. The cream-coloured mosque near by it has a
minaret, which is a beautiful bit of Ḥaḍramī architecture.

The old Sayyid Muṣṭafā puts in his appearance soon after, 609
and there is also a Ḥaḍramī who has done well as a merchant
in Djedda. Conversation turns on the World War and the
events resulting from it. One feels them, as always, groping
for the weak spot in the West, for the seed of destruction in
the wordly and spiritual power which dominates and enslaves
the lands of Islam. It comes out clearly how positively our
listeners count upon a vigorous recovery of Germany, who
will revenge herself for defeat in a new world war which
will put an end for good to the dominating position of the
whole West. They are all aflame for war from so-called
pure sympathy for Germany or antipathy for Albion. It is
difficult, not only to run directly counter to that kind of
anticipation of the future, but also to bring forward some
arguments for the love of peace and of mankind, transcending
differences in religion, in such a way that, at least, they will
not be immediately forgotten again.

After a breakfast of hot bread-cakes, *samn* mixed with 262
honey, poached eggs with onions, tinned pine-apple and pears,
the conversation is taken up again with renewed vigour. We 000

000
172 a chance of success some money could be spared for it. Close to this spring[1] lie against the mountain-wall the ruins of Khurēḍa, the town from which Ḥurēḍa is said to have taken its name. It may be presumed that these ruins date from well into pre-Islamic times, in spite of the fact that we found no inscriptions to prove it. There are remains of houses, namely foundations of stone, two wells, which are still very deep, and a cistern, which is plastered with a kind of cement. A fragment of an aqueduct of mason-work leading to the spring is still to be seen.

312 Tins of water are carried on donkeys from the spring to Ḥurēḍa. We advised that the spring and the rocky basin in front of it should be cleaned out right up to the massive rock, then cemented, and the water brought at least as far as the valley by means of a conduit of iron piping, thus saving much output of energy and minimizing the possibility of pollution and the spilling of water.

After this, under the guidance of the Bedouin Sayyid ʿAlī, we go through the palm-groves and over the dry irrigation canals to the other wall of the wādī, where, in a fissure of the rock, there is said to be a little pool which always has water. Sayyid ʿAlī does not much like the hot climbing, but we
529 persevere in it. After energetic scrambling over fields of stone and up slopes of rock we actually arrive at el-Baḥr, "the sea", a deep, rocky basin, full of water, with high, cavernous walls from which, after rain, the water must fall in spray into the basin. It is a splendid place for a swim. The temperature of the water is certainly high, but it is so broiling hot in the chasm that the contrast is refreshing. The basin is so deep that we cannot dive to the bottom. Sayyid ʿAlī performed one of his great feats, on the occasion of a picnic, by climbing up the high wall of rock and diving thence into the basin. That nearly all these men of the desert are good swimmers and daring divers certainly points to the natural giftedness of the race. Ḥaḍramīs who have never seen the sea enlist as pearl-divers or go as stokers on long voyages.

[1] [ONE MILE S.W. OF HURĒDA -- ANALYST]

24:Meulen and Wissmann T-3 (1931)1932 MM2 Hadhramaut MM2

fluential, privileged position, though abroad this position is constantly attacked, and with increasing violence. Western colonial governments make no distinction between the *sāda* (plural of *sayyid*) and those who are not descended from the Prophet, but here this kind of democracy is neither understood nor respected by the *sāda*. It was the only objection that I heard raised against the Netherlands' Colonial Government. 565 565

In their own land they are the maintainers of religion, and in no other Muḥammadan country are there so many and such beautiful mosques. Also I have seldom seen the *ṣalāt* performed with so much devotion as among the *sāda* in Ḥaḍramaut. Their influence on the government of their land is great: the Sultans are financially dependent on them, the Bedouin tribes are governed by them both by means of money and by religious influence. If they were not so hopelessly disunited among themselves, the political conditions in the "country of the *sāda*" would be much better. It will be seen from what follows how distressingly bad these are at the present time. 782 554

The place of honour is given to the sayyid in daily life; he takes the lead during the performance of the *ṣalāt* and sees that it is duly carried out. He is greeted with a respectful kiss on the hand, a salute which even the Sultan does not evade, at least in appearance; the sayyid shows his appreciation of this by drawing back his hand and making as if he will kiss that of the Sultan. This game of make-believe is carried on for quite a little time, for people in Ḥaḍramaut have plenty of time to spare and cling with great respect to the decorum of life. For the non-sayyid of distinction it also suffices if he makes a pretence of kissing the hand. 565 554

In Ḥurēḍa all worldly authority is subordinate to that of the sayyids. The Governor is a poor young man who is completely dependent, financially, on the el-ʿAṭṭās family. The schools, mosques, wells and other objects of public utility are maintained by the sayyids.

Water-supply for Ḥurēḍa is a matter of difficulty. We saw great wells lined with masonry, which are about 55 *qāma* deep 312●

● 312 (that is a little more than 300 feet). Groups of sturdy male and female slaves, singing in unison the while, raised the water-bags by a pulley and emptied the contents into a conduit which led to a cemented basin. Cheap labour on the one hand and capital earned abroad on the other make it possible to keep such places as Ḥurēḍa in condition. The palm-groves are kept alive by the *sēl,* but seem to be on the decline and, on their borders, to be giving way to accumulating heaps of sand.

648 On the evening of the 21st of May, I was officially received in the simple dwelling of the Governor of Ḥurēḍa. The Governor of el-Meshhed and Sayyid Ḥasan el-ᶜAṭṭās, however, acted as hosts and leaders of the meeting. The Governor is a quiet, friendly, young man and the whole atmosphere is particularly gentle and kind. A youthful poet of the el-ᶜAṭṭās family had composed a song of welcome. Sayyid Ḥasan makes a speech in which the poem is recited and in which he welcomes us as the first Europeans to visit Ḥurēḍa. As Dutch subjects, they are very much delighted that one of us is an envoy of the Netherlands Government. In my reply I said that it seemed right and fair to me that the Dutchman has preceded the Briton in Ḥurēḍa, for with the Dutch in Java exist the more long-standing and intimate relations. In Ḥaḍramaut, along with agreeable surprises, I also found disappointing conditions. We considered the energetic Ḥaḍramīs, whom we know in Java, to be capable of improving the backward conditions which exist in their fatherland.

I seized every opportunity that was offered to me to point to the necessity of independent activity and thus to answer the repeated requests for Dutch or other foreign help for the achieving of better conditions.

172 My companion, with the Bedouin Sayyid ᶜAlī el-ᶜAṭṭās, climbed Djebel Ghumdān to investigate the wonders that are told of this historic summit. There should be ruins, and a deep well on the top was said to have a subterranean connection with Bīr ᶜAlī on the coast. The ruins of defensive towers on

look as though this is still possible in any way; the drifting 361 sand has killed the date-palms and reduced to a minimum the 241 cultivation of *dhura* and the like. The hamlets are partially 134 deserted and the mud houses fallen in.

The very ancient town of Hēnin[1] has shared this fate. The 361 place lies like a long line at the foot of the rock-wall. Castles 134 and defence turrets higher up have fallen into ruin as have most of the houses of this once important town on the road to the Yemen.

Bin ʿAwaḍ Martaʿ has returned to his fatherland from Surabaya 241 with the resolve to try to check its decay. The family 134 house has been restored by him and a new storey built on to it. 312 He has brought from Java a motor pump which has been set up on the 70 feet deep well. The pump supplies 30 gallons of water for irrigation per minute so that, if it works for eight hours a day, it just suffices to wrench a few acres of *dhura* from the sandy desert and to keep alive the 200 young date-palms which are planted between.

Bin Martaʿ himself now also realizes that this is but a service 361 of love at a death-bed and that his motor pump cannot save 134 Hēnin from decay and from the engulfing sea of sand. Hēnin is like a little town destroyed by storm on the rocky coast of an interminable sea of sand which has first swallowed up its palm-groves and is now submerging the place itself. We have seen nothing of the Bā ʿAṭwah, the poet beggars of Hēnin.[2] They have been driven by poverty to the prosperous parts of the valley of Ḥaḍramaut and to Java.

Hēnin is nominally under Qeʿēṭī rule; the Sultan of Shibām 622 and el-Qaṭn protects the place and the insignificant little 511 villages surrounding it. That evening, in the great *madjlis* of Bin Martaʿ's house, we met the poor, simple shēkhs of the

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[1] Cf. el-Hamdānī, *op. cit.*, p. 85, l. 19 *sqq.*, 86, l. 20 *sq.*, 88, l. 10 *sqq.*; De Goeje, *Hadhramaut*, in *Revue Coloniale Internationale*, ii. (1886), p. 110.

[2] C. Snouck Hurgronje, *Zur Dichtkunst der Bā ʿAṭwah in Ḥadhramôt*, in *Verspreide Geschriften*, v. (Bonn, 1925), p. 393 *sqq.*

361 district called el-Qaṭn, now stands out clearly against the foot of the rock-wall. The ground grows flat; the loam emerges freed from the layer of sand; rectangular patches point to occasional cultivation of the land during a favourable rainy season. There is a low-growing plant in the fields; it is a weed that is used as fodder for cattle.

361 Furṭ el-Qaṭn is only a hamlet, but a continuous series of
241 palm-groves and fields of *dhura,* lucerne and sesame stretches from here until beyond Ḥōṭat el-Qaṭn, where the Sultan is resident. All actual cultivation is due to irrigation by means of wells. A broad strip of ground which is cultivated when there is sufficient rainfall stretches outside the date plantations. The level of the subsoil water is nearer to the surface here, as the wādī descends more rapidly than does the subterranean river. Beyond Terīm it comes above the surface for considerable stretches.

●312 The wells and the tracks along which beasts and men go to
231 draw up water are mostly situated in the shade of the date-
241 palms. Where shadow is lacking, long strips of jute or other
564 material sewn together are stretched over the track to make
571 shade for men and animals. Donkeys and cattle are used for haulage, but mostly with the help of man's labour. The poor, hard-working and little honoured caste of the *ḍaʿfā* (the peasants)[1] have as their chief occupation this irrigation work[2], which really goes on almost all the year round. The *ḍaʿīf* walks *backwards beside his cow or donkey, pushing* at the hauling rope with the back of his thighs, in which way his weight has most effect. By the time they reach the end of the hauling track, the bag full of water, which is generally leaking considerably, has appeared at the rim of the well. The *sānī* draws the bag of water (*gharb*) to the rim by a thin rope,

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104 [1] *Ḍaʿfā* is the plural of *ḍaʿīf* (ضعيف), which name is given in Haḍramaut to the agricultural labourer class, cf. C. Snouck Hurgronje, *Verspreide Geschriften,* iii, p. 220 and v. p. 406.

104 [2] Here called *senāwa* (سناوة); the man who works it is the *sānī.* Cf. C. Snouck Hurgronje, *loc. cit.*

where it empties itself into a little mud basin, out of 312
which the irrigation conduits lead to the cultivated ground. 231
Work at the well occupies the whole family: father and sons 241
guide the animals and walk with them in hauling ropes and 564
mother and daughters relieve them at this work. Two old 571
dames sit in the shade making ready food for the beasts, which consists of dry straw bound round with fresh green into bundles, that are pushed into the animals' mouths whenever they arrive at the top or bottom. I saw women continuing their mat-plaiting whilst, at the same time, walking backwards in the traces down the slope of the track. The work is very tiring: pulling whilst going down hill and then climbing up again. The path, on which their walk begins at sunrise, is as long as the well is deep.

2. TO THE SULṬAN'S PALACE IN EL-QAṬN.

One sees the tall buildings of Ḥōṭat el-Qaṭn even from afar [361]
rising above its walls and the tops of the date-palms. The place 342
is not large and is situated, like the townlets in Wādī Dōʿan, 353
stretched out and closed in between date-groves and the rock-barrier. It is surrounded by a mud wall kept in good repair. At the gate of the town we see our caravan; it is on its way to Shibām with the baggage and is resting here during the heat of the day. Although we are informed that the Sultan is staying in Shibām, we wish to pay a visit of courtesy to his deputy at the palace; possibly he may allow us to make a survey and to photograph from the roof of this very high building. The palace has just been partially renovated and, consequently, has not yet the gay outside decoration of whitewash. A broad staircase leads to a large, finely carved door. There we give our letter of introduction to the guard and after some time we are invited to follow him upstairs. By way of broad passages and endless stairs, both plastered with dried mud, we arrive at the reception-room, which has just been finished. Much of the beautiful old Arabian style is spoiled here by

4. A WONDERFUL RECEPTION IN THE GARDEN CITY SEHĒL SHIBĀM.

491 The families of Āl Ṭuwēy and Laᶜdjam are on the best of
493 friendly terms with the Sultan and arrange matters with him.
A little later the great dark-red cars buzz through the gate and
cross the *sēl*-bed in the direction of the palm-groves, called
Seḥēl Shibām. Only in the last few years has the motor-car
penetrated as far as Ḥaḍramaut. Sayyid Abū Bakr el-Kāf of
Terīm has made this possible by the construction of motor
roads. Motor-cars can, with great difficulty, be brought from
the port of esh-Shiḥr to Terīm. The separate parts of the cars
have to be transported on camels for a great part of the way.

562 From the road one can see very little of the palm-groves
529 and the summer pavilions in their midst; high mud walls shut
576 off the gardens from the gaze of passers-by. There is one
exception to this, where the central point is formed by a new
building in modern style. This is the club of the young men of
Shibām; no women come here and so there is nothing to shut
312 off. A little further on the cars turn into the gateway that
342 gives entrance to the garden of the Āl Ṭuwēy and Laᶜdjam.
177 This summer abode of their joint families is still uninhabited;
351 the time for moving from town to country has only just come.
There is a well behind the house, from which oxen and
donkeys draw up the water, clear as crystal, though tasting
somewhat bitter. All around there are banana and papaya
trees, pomegranate and lemon bushes as well as date-palms.
The new summer pavilion is in the depths of the garden; our
host has devoted his leisure to building it. It is a product
of Ḥaḍramī imagination influenced by Singapore and Java.
For the outer walls chaste, simple white has been abandoned
and is replaced by soft green, rose and sky-blue. The great
windows are framed by coloured ornamentation. Connected
with the villa is a swimming-bath with a high parapet. One
has a great longing for colour in this sunny land, where it is
so lacking, and this fairy palace strikes a happy note among

the grey-green tops of the date-palms with the unchanging 342
yellow-brown rocks in the background. The contrast between 342
this part of Ḥaḍramaut and the desert of burning loam and 177
sand, which scorches up the small, dying villages, is certainly 351
great. To our regret we are only able to make a short stay in this land of enchantment, as the Sultan expects us at the palace for the evening meal. Our hosts take us back to the town and ooo
ask the Sultan whether he is willing for us to stay with them in their garden villa for the night. Permission is given and the Sultan even promises to spend the next day with us there. We eat alone in the palace; the Sultan retires after inviting us to draw up to the dining mat and to fall to. Afterwards by moonlight we return to the garden. Tea and pomegranates are served on a terrace. The conversation, carried on in Malay, is not fatiguing; our hosts make us feel how welcome we are and how much they appreciate this break in their very monotonous existence. When we wish to bathe in the swimming-pool we are provided not only with spotlessly clean bathing-gear but also with combs and scent. The moon shines in calm, silent splendour on the dark crowns of the date-palms, the water is clear and lukewarm. We ask ourselves over and over again: "Is this real? Is this actually Ḥaḍramaut, the secluded, the fanatical, the poor?"

Sultan ʿAlī bin Ṣalāḥ came, as arranged, on the following morning. He at once made searching inquiries as to our further plan of travel. We are here on the farthermost limits of the Qeʿēṭī territory and naturally the question arises: "What will await us among the Āl Kathīr?" We told the Sultan that our experiences would determine our return route. We should now go first to see the famous Sayyid Abū Bakr el-Kāf in Terīm; if he approves and thinks it justifiable to take the risk, then I, at least, shall have to return by the shortest route, and that will be direct through the Ḥumūm territory to esh-Shiḥr. Sultan ʿAlī's advice is strongly against this, the road is dangerous and Sayyid Abū Bakr has only financial influence and no governmental authority. No, we must return to Shibām,

CHAPTER IX.

SĒWŪN, THE HEART OF ḤAḌRAMAUT PROPER.

1. PENETRATING INTO THE ĀL KATHĪR TERRITORY.

The border of the Qeᶜēṭī territory is a quarter of an hour's 131
walk to the east of Shibām. There, high up at the edge of the 712
mountain, is a fort and an observation post; there are also mud
block-houses in the plain. Somewhat further along the mountain's ridge the white military posts of the Āl Kathīr are visible.

On the afternoon of May 24th, immediately after leaving 721
Shibām, we cross the sandy wādī diagonally towards the
northern side, where there is least vegetation, but also least
warfare. The whole southern side has the name of being unsafe. But even here on the north, soldiers dog our footsteps
whenever we stop to take photographs. The villages are built 361
up against the mountain foot, and on higher points are the 312 ●
ruins of fortifications. Following the margin we again enter/ 33
date plantations, which are, however, very thin and finally
perish in the engulfing sand. Then we go on through sand-dunes overgrown with a kind of beach-grass. Close by Sēwūn we again have to cross the bed of the wādī, as this place is situated on the southern side. There is water, here and there, in the *sēl*-bed; it is, however, very bitter. The soil close to those stagnant pools is covered with a crust of white salt.

Sēwūn lies within a wide belt of magnificent palm-groves 241
and fields of *dhura*. The water-level is only eighteen to twenty-one feet below the surface; the water has a saltish taste, but appears to be exceptionally suitable for the irrigation of the gardens. We had not so far seen such vigorous date-palms and such luxuriant, tall-growing *dhura* as in this part of the country. The hot wind has already ripened the bunches of dates, which are comfortably hidden away by this time in their

p 119

often very poor in water, but, over and above this, countless 508
internal wars make traffic dangerous and force travellers to 489
go by very circuitous routes. This is why the Ḥaḍramī seldom
knows his own country well. A learned Ḥaḍramī whom I knew 186
formerly said to me quite truly: "I know all the volcanoes of 641
Java and all the stations on its main railway lines, but I cannot 578
give you any information about the wādīs and mountains a few hours distant from my home." The Sultan of Sēwūn is a relatively favourable exception to this rule in that he has seen Aden; he went there to attend a conference convened by the British authorities, where an attempt was made to arrive at a peaceful settlement of the differences between the Qeᶜēṭī and Kathīrī rulers. He desires to see more of the world, including Java, the land in which three quarters of his subjects have interests. The great difficulty, however, is to get over the Qeᶜēṭī barrier, and for that an aeroplane is necessary. The site for the future aerodrome which was shown to us seemed quite suitable.

In the evening there is again a gathering on the roof-terrace 735
at ᶜIzz ed-Dīn. The subject brought forward for discussion 312
is the poverty of Ḥaḍramaut and how relief from it may
be obtained. In and around Sēwūn the water-level is not 653
deep, which fact accounts for the prosperous palm-groves and fields of *dhura*. But the water-supply would have to be enlarged if it is to help the people really forward. This cannot be done by motor pumps, because they are too expensive in practice. The pump at Hēnin has to work eight hours a day to keep in existence a few acres of *dhura* and 200 small palm-trees, and that costs more in kerosene and lubricating oil than can ever be made from the produce of the irrigated land. The soil in Sēwūn is better and water nearer to the surface, and yet experience has taught that here also the motor pump does not pay. Can matters not be improved by means of artesian wells? The Sultan asks us to help by sending an expert with the necessary instruments. He says that at one time, in the days of the Ḥimyaritic kingdom, Ḥaḍramaut must have been

735 prosperous. Great irrigation works for collecting and distri-
312 buting water were constructed. There is no longer united action,
653 the reservoirs have gone to wrack and ruin, and now, every year, quantities of life-giving water stream down to the sea and are wasted. This matter was discussed again thoroughly later in Terīm.

000 May 26th is the day fixed for our departure for Terīm. In the morning, cars are placed at our disposal to enable us to make a tour through the city and its surroundings for taking photographs. We thankfully seize this opportunity of making a pictorial record of some of the fine houses and views of this city in a forest of palms in the midst of the desert. In photographing the es-Saqqāf town house it is impossible to evade the pressing invitation of Sayyid Hūd es-Saqqāf to come in and have a glass of tea, so we promise to do so as soon as we have finished photographing. We cannot pass the cemetery without taking snapshots of some graves with light-green cupolas with unostentatious, beautiful, open-work borders. There are also several small mosques in picturesque situations. The Sultan kindly allowed us to admire the city of Sēwūn from the roof of his palace. Noticeable here in this great palace are the order and cleanliness which literally gleam *out at the visitor. It is especially in the palaces,* with the many soldiers quartered in them and with the many guests, that the contrary is often the case. It takes some time before the women in the corridors and on the staircases, where we have to pass, can be warned of our approach. When this has been successfully done we saunter through deserted passages of mud and ascend by well-constructed even staircases to the shining white roof. Here we stand on the most beautiful site in Ḥaḍramaut. Terīm does its best to equal it and has more to show in great palaces, but here is grace, here is the happy variation of deep-green, luxuriant gardens and fine summer residences, here the Ḥaḍramī style, pure and harmonious, has been adhered to.

In the house of the namesake of Hūd, Ḥaḍramaut's great prophet, the promised glass of tea is awaiting us. The grey-

753 758 and our doctor has had to adapt himself temporarily to it and to fixed wishes regarding diet, in anticipation of the growth of better understanding and more trust. The result of his work as the first and only doctor in all Ḥaḍramaut is not as great as one would expect. Sayyid Abû Bakr himself is not yet sufficiently convinced of the value of western medical art to allow the never ending outlay on medicines and instruments for the expert help of the doctor. The first nurse in Terīm was an Arab from one of the African coast towns, who missed his cinema and café so much that he speedily fled from the place of banishment, to return to the towns where he could enjoy the blessings of western civilization. Thus the doctor has all the work again on his own hands.

743 An enormous mud building has been placed at his disposal. In it he lives, has his pharmacy, the polyclinic and the beginnings of an operating-room. Further, one of the young el-Kāfs, who was assistant to an Egyptian dentist who formerly worked here for some months, has a room where, equipped with modern instruments, he practises dentistry.

164 According to the doctor, Ḥaḍramaut seems to be a healthy country. Among the lower classes there is, however, a good deal of eye disease, and it is also true that malaria makes its appearance in the autumn. What will be the eventual outcome of this beginning of medical help will depend on the tact and devotion and staying-power of the young doctor.

● 312 After this we go with the doctor on a walking tour to see the sights of the town of Terīm. First of all, naturally, we visit the remains of old Terīm, on the borders of the residential area of the town; it consists of a bare low hill on whose top stand the ruins of the once great and mighty castle. There are always wells for drinking-water in castles of this kind. These wells are very deep as they are in the inner courtyard of the castles and are, consequently, dug from the summit of the hill. From this ruined castle one had a good view over

346 Terīm so rich in mosques, palaces and ... graves. The popular report in Ḥaḍramaut is that the town possesses 360 mos-

of pilgrims who used to come and worship here. ʿĒnāt is well 361
situated for this: nearly *all* pilgrims to the tomb of God's 778
Prophet Hūd must pass through it. Now its greatness has
fallen, and everyone in Ḥaḍramaut knows the *nuqra*[1], the 361
cause of its gradual ruin. Since the disappearance of the dams 778
periodic strong currents of water have worn out and deepened 134
the *sēl*-bed. This erosion has moved slowly up-stream. By a dam nearly a mile in length Shibām has had to protect its palm plantations against this action, which lays bare the roots of the trees. ʿĒnāt is situated further down-stream than any town in Ḥaḍramaut, so that it gets the full force of the torrents and the erosion occurs here first and makes itself most seriously felt. The *sēl* is very much strengthened at times by water from various side-wādīs, and in the thick layer of loess covering the valley here its bed is washed out deeper and deeper.

The roots of the palm-trees are washed bare and, conse- 134
quently, the crop becomes smaller. Finally the tree falls; it goes on living and still bears fruit, but its death is near. The broad zone of palms around ʿĒnāt is slowly perishing through the *nuqra*. The palms are doomed; the sun penetrates through the many open spaces, the works for distributing water are destroyed, and everything is covered by a layer of white sand. We only visited ʿĒnāt on the way back, keeping now to the northern bank, which soon rises high up above the bed of the wādī. The loess wall is becoming more and more undermined by the water and it is therefore difficult for our drivers to find a safe way along it. This danger proved real on the way back; one of the two cars overturned and was badly damaged.
An attempt has been made to divert the *sēl*-bed to the foot 312●
of the mountains on the north by constructing a dam. A great sum was raised for this, but the dam was repeatedly destroyed by the water so that the undertaking was, at last, abandoned. The plan to construct a dam was due to the initiative of one

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[1] *Nuqra* is the gradual erosion by the water. 104

312 of the best known of the sayyids of Ḥaḍramaut, Sayyid Muḥammad bin ʿAqīl bin Yaḥyā, who made a journey east of Terīm in 1913. After his death in September 1931 there was found among his papers a detailed account of this journey, which was published in Java in the weekly paper *Ḥaḍramaut*.[1]

2. QASAM AND ITS OLD CASTLE.

361 The land down-stream from ʿEnāt has suffered even more from the *nuqra*; date culture has disappeared and many of the people have departed. The little town of Qasam gives a clear illustration of this decline. The town, still surrounded by a wall, lies half in ruins; only a few hundred people live there now, whereas formerly there were thousands. Outside the wall there is a vast cemetery, which is bounded on the other side by a mediaeval castle and its accessory buildings. Part of it has fallen in, but, with its simple, powerful lines, it is still a fine building. The conical corner towers have a thickening at the level of the second storey. The white bands on a line with the rows of windows have almost disappeared; bit by bit the building will become a grey mass of mud in the midst of 622 a land whose inhabitants have left it. The old *muqaddam*[2] 567 welcomes us in the great reception-room; he is very deaf and his slave soldiers are his spokesmen. His father was a mighty and widely feared ruler, while he has carried on a hopeless struggle against the forces of nature. His land has dried up, his subjects have departed, he has become poor, so poor that he can no longer pay his soldiers. Warfare was no match for the drought. His five score of slave soldiers have remained faithful to him; in turn they go in groups to their paternal country on the African coast or elsewhere to earn something by trading or by manual labour and then return to their old master, to share the money that they have saved, with him and their fellows.

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[1] Published at Surabaya, 9th year, Nos. 303 and 304.

[2] Cf. p. 67, foot-note.

172 To expedite matters we take the risk of starting off in
•312 advance on our donkeys. As we pass we see at a great distance
231 some villages almost entirely in ruins, and also castles
of the type of that of Qasam. There is water here and
there in the deep and by no means wide *sēl*-bed. It appeared
soon after we left ʿEnāt and it increased further towards the
east. This water is pretty bitter, though in some places it is
sweet enough to be drinkable. The inhabitants prefer the
well-water, which is better, but the pack-animals drink the
water of the river. It is running and every now and then disappears
to continue its course underground. Beyond Qasam
the wādī is still wide and the soil consists of a thick layer of
136 loess. The broad path winds between bushes of fresh green
rāk covered with bluish-red berries, which are being gathered
here and there by children. When we heard that they were
eatable we tasted them; they have the taste of cress, sweet
but hot as pepper. They have a strong laxative action as
have the leaves for which camels and donkeys have a liking.
Where *rāk* grows the animals are given nothing else, although
they get diarrhoea from it. In journeying through *rāk* districts
one sees the rumps of the camels smeared with greenish pap,
whilst their leaders and riders are not free from splashes
sprinkled round by their animals' tails. At these times a very
unpleasant smell clings night and day to the caravan.

172 The further we go, the more barren becomes the bed of the
wādī, which is still very wide. The layer of loam is covered
with sand; mounds of loam rise up out of it, some of them
covered with vegetation. Shortly before sunset we enter
a region of many and magnificent ruins. It is too late to
examine them closely, and we pass the smaller mounds by
so as to go on to the central ruin of el-ʿUrr. This is visible
when we are still far from it. Massive remains of walls,
towering high against the evening sky, stand on a lonely mass
of rock, right in the midst of the wādī level. The rocky hill
extends some distance and is very steep, and it is difficult
to clamber over the rubble of the building, which has

000 from our roof how they begin to stir on the other roofs close to us and then go down to the kitchen to light a fire for a cup of ginger coffee. There is a small grove of date-palms round es-Sōm, on either side of the *sēl*-bed, which is full of water. We wash and drink our fill at one of the wells before resuming our journey in the heat.

After about three hours we arrive at the village of Fughma, which consists of a few mud houses encircled by huts. It is scorchingly hot although still early in the day. Our escort declare that we must rest and eat here, as there is no other village and no water to be met with for the next four or five hours. We do not believe this and insist that we must go on, but they, as one man, refuse, warning us of the consequences of such folly, and promise to set out again after an hour's rest. We give in against our will, with the unpleasant feeling that we are being taken in and that we could quite well take the risk of going further. A kid is purchased from our host and is carefully prepared for a splendid meal. Fughma is the last stopping-place before Qabr Hūd, and a four hours' walk through barren country still awaits us.

312 With great difficulty we get the caravan going again at
133 two o'clock. We continue to follow the bed of the wādī, where we find water nearly everywhere! It is now the middle of the dry season; after the scanty rains or when the *sēls* rush down from the western mountains, then, at this point, the *mesīla*[1] of Wādī Ḥaḍramaut must have the aspect of a real river. Thus the British airmen from Aden reported truly when they said they had seen a river running through the wādī beyond Qabr Hūd. The river disappears under the surface of the soil, however, long before it reaches the Indian Ocean.

796 Close to Fughma we pass through small groves of palms with groups of miserable huts. This is the spot where the Bedouins of the neighbourhood come together once a year, to feast in pious memory of a holy man. Those are days of truce dedicated to God and trade. In Fughma we could hear

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104 [1] A *mesīla* (مسيلة) is the bed of a *sēl*, a torrent, a streaming water.

the tomb of Hūd, are written here and there on the walls. 000
The sun is sinking as we go from the pillared hall of the 346
cupola to the terrace built round it and look out over the long wādī through which we have come. There is water in the *sēl*-bed, which shines like gold in the light of the setting sun. The bushes and trees along its banks have taken on a violet colour. The shapes of the stern rock-walls are becoming blurred and have lost their look of sombre menace. This is the solemn moment when desert, *djōl* and wādī are movingly beautiful. The silence and infinity oppress, nevertheless, and man deeply realizes his littleness and finiteness.

We descend the steps to the silent town in the ravine. In 782
the mosque of the *nāqa*, between the white pillars, we 346
see pilgrims at prayer in rows, prostrating themselves and standing up again. Their prayer of supplication has a moving sound in the great silence of the evening. The mosque is quite new; a great block of rock which is said to be the petrified camel projects from the mountain-side above the building. A great white terrace, on which are straight rows of simple, round pillars supporting a flat roof, and a broad white stairway leading down to the town, complete a sober, beautiful whole.

We have been able to enter one of the great houses of the OVD
el-Kāf family by a small backdoor. The rock-walls and the houses are radiating the heat that they have absorbed during the day; gusts of hot air pass from time to time through the ravine. We climb up to the roof-terrace. The caravan has arrived shortly before us and our companions have lain down to rest on the roof. No one has energy left to attend to us, no one provides for food or for drink, and yet we are dying of thirst and must have water. One of the Bedouins who followed the caravan is persuaded by the promise of a meal to go in search of water. The wells in the town do not supply good 612
drinking-water; the water in the wādī is bitter and is only drunk by the pilgrims, who also bathe in it, ascribing a purifying power to it, but there is a well with sweet water in wādī Barhōt, at least half an hour's walk from the town.

361 the tombs of holy men. The Āl el-ʿĒderūs, one of the families
778 of sayyids whose riches are made in Java, come from ʿĒnāt
788 and are, moreover, the ruling family in this pious city, which owes the few houses that are kept in repair, the beautiful white mosques and the fine school for boys to these sayyids and to those of the Āl Ḥāmid. At the seven *qubbas* we meet Sayyid ʿAlī bin el-ʿĒderūs, who feels an exile from his people who live in Surabaya, but his place here will be taken by another member of the family in a few years' time. He is glad to meet someone who knows Java and invites us to take a cup of tea with him. We learn from him that ʿĒnāt can
●312 boast of thirteen mosques and has, at the present time,
172 5000 inhabitants. Water for drinking has to be brought from
[/62] a great distance, as the local supply is not fit for it. Sayyid ʿAbdallāh Āl Ḥāmid, who lived for ten years in Dār es-Salām, is also glad to have an opportunity of talking once more with Europeans and comes to Sayyid ʿAlī's *madjlis*. He has some acquaintance with the early history of his country and tells us of the great dam which is said to have existed in pre-Islamic times between Qabr Hūd and the sea. The destruction of this dam ushered in the decline of Ḥaḍramaut. Sayyid ʿAbdallāh has his own theory of the means by which the great stones of the buildings in the pre-Islamic period were piled one upon the other; he asserts that he has seen representations of elephants on the ruins and assumes that it was by them that these heavy stones were dragged to their places. I doubt whether this supposition is correct, although it is true that elephants play a part in the historical traditions of Arabia. The great castles are built on high, rocky hills, whose slopes are barely practicable even for man.

CHAPTER XIII.

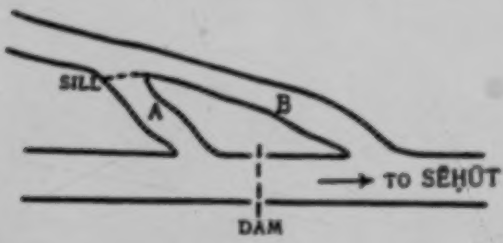
OUR LAST DAYS IN TERĪM.

On our return to Terim we were met with a storm of 000 questions and had to give a detailed account of our experiences in Bīr Barhût. They were all very much surprised to hear that it really is *not* a crater. In reply to the question what it actually is we answer that it is one of the many caves which Allāh is wont to create in mountains of limestone formation. Sayyid ʿAlī el-ʿAṭṭās gives to an attentive audience a dramatic account of what he saw and heard and experienced in the cave into which no man before him had ventured.

The following day, June 5th, was a Friday. In the morning [565] of that day the learned men and notables of the place meet in the el-Kāf house. This time the meeting was very animated; many questions were put about the ruins and about Bīr Barhût, and interesting views expressed on the subject. A brother of Muḥammad bin ʿAqīl, the Ḥaḍramī traveller, told of the remains of the supposed great dam of the Ḥimyarites, which were investigated and described by his brother. He estimates that 600 years have elapsed since the destruction of the dam, which must have been accomplished not by floods but by the hand of man. The dam must have been made entirely of mud, as no fragments of stones remain. According to other informants, many well-hewn, massive stones are to be met with down-stream from the dam. Muḥammad bin ʿAqīl 312 in his paper says that the dam could easily be reconstructed, as it has a very favourable position. The side-wādī *a* was filled by the damming-up of the water; *a* is connected with side-wādī *b*, as an existing, low sill of stone forms no real hindrance. So the surplus water found an outlet through these side-wādīs. Thus too heavy pressure was never exercised

● 312 upon the dam. Bin ʿAqīl has made much propaganda all his life long for the restoration of the dam. Three tribes have a direct interest in the matter, namely: the Āl Djābir, who dwell up-stream in Wādī ʿAdim, the Manāhīl, in whose territory is the site of the ancient dam, and the Banū Tamīm dwelling between the two former tribes. According to Bin ʿAqīl, the Manāhīl have promised the half of the loam soil and the whole waste land of their territory to those who will put the dam into working order again.

312 The obvious question is put why this work, presumably
829 so important for Ḥaḍramaut, has not yet been undertaken.



It is the great, urgent question which is coming more and more under consideration and discussion in the advanced circles of those who have lived abroad and who feel with sorrow the backwardness of their fatherland. These painful questions are brought once more to our attention before we take farewell of this group of men who feel themselves responsible for the future of Ḥaḍramaut. They want to hear our reply although they know it quite well. The fundamental weakness here is the lack of unity. They have realized from experience that they cannot attain this unity by themselves. 829 Therefore they regard as necessary the coming of a compelling power which shall be stronger than all the little groups with conflicting interests in the country, a power which shall impose unity and which, by a curt command, shall put an end to the suicidal intertribal warfare. But that is merely shifting the difficult task, that is flight. True change for the

621 We had not received favourable reports of Wādī 'Amd. The el-Aṭṭās family, nevertheless, maintained the contrary; it is their wādī and the Dja'dī Bedouins who inhabit it are allied with them and are, in a certain sense, under their control, but it is hard to discover how far this control goes. We got the impression that the wādī was very much armed and ready for war. The landscape is barren and, at first, monotonous; the *sēl*-bed is broad and filled with bluish-white, small boulders. Conditions must have been much better in the old days, for the numerous ruins suggest a dense population.

361 It is long after sunset before we reach Nukhr, where the el-'Aṭṭās
231 family own a house. The place consists of a few huts
243 and a half tumble-down mud house, in which a room has been prepared for us. It is too warm to spend the night indoors, but the staircase leading to the roof has collapsed. In the middle of the hamlet there is a storehouse for fodder, half below and half above the ground. Its roof is about three feet above the ground and has a parapet about one and a half feet high. The basin thus formed is smoothly plastered with mud, and the grain is thrashed in it after harvesting. It makes a hard but safe sleeping place.

172 On the following day, June 10th, we set off again south-
● 312 westwards. At first the wādī is very monotonous and barren
241 and the *sēl*-bed widens considerably. After two hours' riding Wādī 'Amd makes a bend towards the south and then very soon one comes across date plantations. There are an increasing number of ruins of what, presumably, were defence works, situated on hill-tops. The palm plantations have suffered much from the drought in recent years, as for two years there was neither rain nor *sēl* of any considerable quantity. The subsoil water is far from the surface and wells are 300 to 450 feet in depth so that they are not used for purposes of irrigation but only for supplying drinking-water. Groups of men hoist up the water, singing monotonously the while.

241 Further southwards the plantations increase and form an unbroken
312 girdle between the broad, wild *sēl*-bed and the wes-

tern bank of the wādī. The fields are bone-dry and trimly 241
cultivated, rain being expected this month. One substantial 812
downpour of rain or a good inundation caused by rain elsewhere
is said to be enough for this loam soil, which holds
water for so long. Great pains have been taken over the irrigation
system; the dams, made of piled-up stones and plastered
with an inner lining of mud, suffer much from the *sēls*. Groups
of inquisitive people come running towards us out of the
villages and ask all sorts of questions of our escort. A grey-headed
village-chief turns to us with the inquiry how to put
an end to the repeatedly recurring destruction of the stone
dykes through the *sēl*. We answer that it would probably
suffice if they were to use lime as cement for the boulders:
the initial cost of this would be considerable, but it would be
a great economy in the long run.

All the women of this district are veiled, even the poor 834
women working in the fields. When working in the sun they 291
wear straw hats with very wide brims. They are not so 301
frightened of us as women were elsewhere and are quite ready
for a chat or even to be photographed. The young girls, at the
request of the men, climb like cats right up to the crowns of the
palm-trees, to pick the ripe fruit from the bunches of dates.
Their wide black garments hang untidily about them, the
only pretty thing in their dress is the broad girdle ornamented
with large and small silver buttons, which encircles the waist.
An attempt to buy one of these fails, as the women are all
too modest to think of selling a part of their clothing. Many 857
children run all over the place with little bows made of the
rib of a palm-leaf, and sharp-pointed arrows of the same,
with which they try to kill the few birds that alight on the
ripening fruit. Occasionally, as we pass, some relative of one
of our escort will present us with a handful of the first really
ripe dates.

● 312

The first watering station on the *djōl* of the Deyyin.

133

The *djōl* of the Deyyin Bedouins.

facing p. 209

See pages [illegible] *and* [illegible]

153 We mounted our camels on reaching the *djōl* and made
as fast as possible for the first halting place, where there was
drinking-water to be found. This *djōl* differed little in charac-
ter from that which we had crossed on our way to Wādī
Dōʿan. It is again the same flat, limestone plateau, thickly
strewn with sharp fragments of stone; through this winds
a similar narrow camel path. The view is limitless in every
direction; the characteristic, long chains of table-mountains
are absent here. Here and there we pass some dwarf trees,
crooked and gnarled. Deep silence reigns in this motionless
361 region. After some hours marching we saw, in a fold in the
land, a fortification built of rough stones with strong, square
312 towers at each corner. Some people are living in it, so there
must be water at hand, and it is high time, for our thirst is
becoming a torture. Not a living soul was to be seen, nothing
but a wall enclosing a square space, with towers rising up
out of it. Close by rain had conveyed some earth to a depres-
sion in the ground, where there were some dried-up fields and
a few *nibq* trees, leafless and grey, with not a sign of green;
everything was monotonously grey and lifeless like the rocky
plain all around us. As we neared the settlement we saw a few
large *neqābas* and people drawing water from them. There had
been no rain for a long time and, consequently, the water-
supply in some of the *neqābas* was exhausted, whilst, in the
others, the water which had been stored in them for so long
had a brackish taste; in spite of this, we slaked our thirst with
it and filled our water-skins and thermos flasks. We dealt out
biscuits from our store to the poor, friendly inhabitants, who
were experiencing extra hard times on account of the long
drought. A small caravan from Makalla was also resting there.
438 Dried fish, principally small sharks, and rice were being carried
to Wādī ʿAmd, but the cost of transport appears to exceed
the market value of these articles in Makalla.

361 Our way continued over the *djōl* until we reached Sherdj
el-Abyaḍēn Bā Manṣūr, where we rested for the afternoon.
Here we saw the same picture of drought and poverty. The

24:Meulen and Wissmann T-3 (1931)1932 MM2 Hadhramaut MM2

301 MARYAM, ENCOURAGED BY HER MOTHER, EVEN YIELDed up to us her graceful girdle of copper wire with fine silver wire twisted round it, in return for good payment, as well as her necklace of oval silver beads. Having made a success of this transaction, Maryam at once made her way with a part of the proceeds to the goldsmith, living in a village hours away, to buy a new girdle and necklace!

361 We continued our way through the monotonous stony levels in the burning heat of the afternoon. In the distance we saw a few scattered hamlets belonging to the Deyyin territory. These villages generally have a piece of cultivated land and a few trees, and the well-ploughed land lies waiting now for the rain, which will make sowing possible. The trees are burnt up, brownish-grey, dead as in a northern winter.

72/ On our left we passed the ruins of el-Khamīs. Our sayyid told us that this had been the dwelling-place of a Ḥaḍramī, who had amassed a fortune in Java and, when he returned to his fatherland, had tried to conquer a kingdom. With the money he had made in Java he recruited soldiers, made raids into the fertile lands of Wādī Dōʿan and destroyed its gardens of date-palms. In place of buying him off with a piece of land, the Qeʿēṭī Sultan raised an army against him and even transported a few cannon to his village. The man, who was out for a kingdom, was not prepared for this development; he was taken prisoner, his village was razed to the ground and a heavy ransom was exacted from his wealthy family in Java. The family petitioned the Netherlands Government on behalf of the captive adventurer, basing their appeal on his Dutch nationality. It was then that the desirability of being accurately informed as to conditions in the land of origin of a considerable number of its subjects became evident to the Netherlands Government.

312 A little further on we came to the village of Khalifet Bā Suwēde. There we made a halt to beg water for man and beast and to try to purchase some food for the animals. It appeared that there was not much water left in the *neqābas*, and doubtless this accounted for our none too friendly reception. There

600 air that we were nearing the coast and Wādī Ḥadjr, where there is always water. Our clothes and other things were already damp by the time the sun rose.

Not till twelve o'clock did we halt in a sweltering wādī under the shade of a boulder which radiated heat. An effort of will was necessary to get us under way again, towards half past two. We went on in silence, avoiding speech with each other, as the energy which makes for friendliness and gaiety
133 was lacking. We pass through a region very interesting from a geological and botanical point of view. The *djōl* ends here and a broken, uneven area of rock and wādī takes its place. The direction of the strata, until now uniformly horizontal, is disturbed and new strata of coal-black rock formation break a way through the layers of limestone and sandstone and sometimes rise up above them like solitary cones. There is more water, but it contains a high percentage of salt. We go through jungles of grass, several feet high. Here and there the ground is swampy and covered with a crust of salt; a tall, slender palm-tree of a kind we have not hitherto come across grows in this salty marsh land. Later on we come again to
361 barren stretches covered with boulders. To our amazement
312 we found no human settlements here: we only saw people when much farther on, by the thickly-grown banks of a shallow but swift-flowing river. This turned out to be the upper reaches of Wādī Ḥadjr. The water was very warm and bitter. The sun was already setting when we crossed the stream and hastened on to reach Ṣidāra before nightfall, but before long we saw the scattered stone houses of this large village lying on the hilly banks of the wādī. Here cultivation begins again: fields of sesame and *dhura* alternate rapidly with gardens of date-palms. Vigorous springs throw up water which is nearly boiling; this water is carried to the fields and date plantations. The conduits have been made of such a length that the water is sufficiently cool by the time it reaches the plants, but even so it is still very warm. We noticed a white deposit in the conduits.

The hot springs of Wādī Hadjr.

Wādī Hadjr, the only overflowing river in the neighbourhood of Hadramaut

facing p 225

The youth of the village was diverting itself in the street below us, when suddenly we 825 heard a great noise and saw people running from all directions and bombarding the house opposite ours with stones. We thought that a general fight was about to ensue. Then came some men carrying burning palm-leaves and the house which was a target for the stones was fantastically lit up. To our great relief we discovered the cause of the disturbance: a large snake was trying to escape along the front of the house. Some of the stones hit their mark, the twistings and writhings grew slower and then the creature fell into the street as if broken. One of the most daring in the crowd approached and cut off the end of its tail; with that the danger was ended and peace was soon restored.

When we were thoroughly tired of answering the numerous 000 questions put to us and of greeting those who put them, we asked permission to retire to rest. The whole assembly gave its approval; our host announced that we were to sleep on this same terrace, but no one moved an inch for us to be alone. So there was nothing for it but to stretch ourselves out between our visitors, who were packed as close as sardines. A little later on we were awakened for a meal; every one was still sitting in the same place. We ate and then at once went to sleep again, but were awakened before the sun rose by the loud voices of our visitors, who had already come back.

That day was to be devoted to getting our caravan ready for the journey to Makalla. Stammering Saʿid, who had been such a trusty helper to us all the way from Rōdet ed-Deyyin, would give his exhausted camels a good feed and rest and then return with them to his boundless, hard rock-plateau. The taciturn black slave from el-Qarn in the Yebʿeth district had been a good guide; he went his way homewards well pleased with a thank-offering for the faithfulness, of which we had had so much doubt at first.

A reconnaissance of the neighbourhood showed that several 312 hot springs water the date-gardens and cultivated fields near 273

245

● 312 Ṣidāra. The high temperature of the water does no harm
273 to the vegetation as can be seen by the thick and almost
245 tropical growth even at the sources of these hot streams. The picture made by this landscape in the midst of the deserts of rock was quite new to us. New to us also was the custom, which exists here, of tapping sap from the palm-trees: this sap soon ferments and produces a by no means innocent
[58] drink which is consumed in large quantities. Artless tales were told us of many a man who had become a regular slave of the wine of the date-palm. That this abuse of the date-palm, so strongly condemned by orthodox Muḥammadan opinion, does not seem to exist in other districts through which we travelled, is probably due rather to poverty than to religious conscientiousness. The people only indulge in the luxury of this sin in the well-watered country of Wādī Ḥadjr, where date plantations succeed each other continuously for hours and even days.

312 We had a bathe in one of the warm springs, a comfort
133 lacking since Diyār Āl Buqrī; but the crowded circle of critical and youthful spectators and their mocking remarks, added to the somewhat too high temperature of the water, prevented complete enjoyment of the event.

These hot springs point to volcanic action. Ṣidāra lies on the edge of the coastal chain of mountains, which is full of clear traces of volcanism. The monotonous similarity of the *djōl* and *wādī* formation of the interior has disappeared. The geological strata are no longer horizontal, nor do they consist any longer of limestone and sandstone and loam. Fantastically folded and broken strata, high precipices and peaks of archaic rock, between which extinct volcanoes can be recognised, characterize the landscape between Ṣidāra and Makalla.

000 The necessary waiting for camels and escort gives us the opportunity to write up our diaries, which has been pushed aside lately by other and more urgent affairs; but although our host does his best to give us the chance of a few hours' quiet work in a room upstairs, he does not succeed in doing so.

312 The way ran by the river all the time now, through an un-
361 interrupted grove of date-palms. At one time the path follows
511 the left bank, then at another the right. At regular intervals
241 we pass long, low dams made of boulders; these store up the water which is conducted through channels for the irrigation of the palm-gardens. The fringe of palm-trees is not, as a rule, wide and above it, against the rocky slopes, where no shade falls, villages swelter in the heat of the sun. They are always in a good strategic position, for this fertile Wādī Ḥadjr has been a much disputed territory until a short time ago. To this must be attributed the low degree of prosperity and the lack of intensive cultivation of all the arable land here. In this respect Wādī Dōʿan is on a much higher level.

361 After a few hours the wādī becomes narrower, the rocky
342 slopes approach the river, and the cultivated strips of land grow narrower and, at last, cease entirely. Our way goes over a plain strewn with sharp, reddish-brown stones, where lies the village of Ḥuṣn Mṣēneʿ, which consists entirely of houses with neither front nor back walls; they are like short tunnels of stone with their further end towards the rock-wall and their front facing the river. When we asked the reasons for this way of building we were told that they were poverty and the great heat; in this way advantage is taken of the breeze which blows through the tunnels. Its inhabitants belong to a kind of gypsy tribe living apart from other people. Further on they dwell in large villages of straw-huts; they are half-nomads and are despised by the settled inhabitants.

312 The wādī narrows until it becomes a rocky gorge through which the river flows underground. Its narrow bed is full of boulders; probably the *sēl* after rain rushes through here above ground as well. The path rises steeply up the rocky slope, and it is a real feat on the part of the camels to climb up, with their heavy loads, over the slippery boulders and then to descend again into the wādī where it widens out. Half-way through the gorge the river comes to the surface again, showing a beautiful greenish-blue colour.

After the descent no one could resist the temptation of the shady trees and shining white sand by the river, which has here broadened out into a deep pond. But it is a case of deceptive appearances. Burning heat soon made this afternoon camp untenable, for it is only the date-palm, in Arabia, that gives satisfactory shade. Other trees are illusive on account of their apparent shade, as their leaves generally take an upright position in the heat of the day to protect themselves from the sun's rays. 312

At the point where the river runs against rock and makes a bend of 90°, it has hollowed out a basin so deep that we could not reach the bottom by diving. The sand on its margin and also the rock were so hot that one could not stand or sit on them without one's clothes on. The water also was warm. The dry desert wind alone brought coolness, and that only as long as one's body was still wet. The succeeding hours spent in that bivouac were a martyrdom. Ants and camel's ticks gave us no peace, and the piercing rays of the sun, together with the high temperature, made us fear for sunstroke. 000

Quite early in the afternoon we went on our way. The path wound from one bank of the river to the other. The wādī is still narrow here and the arable strip of land inconsiderable. At long intervals we saw an occasional field of *dhura* with a hut for its guards. Otherwise the wādī is uninhabited in this part.

Before sunset we reached el-Ghabara, where our road was to leave the wādī and cross the mountains for some distance. Our Bedouins asserted that we should be without water there for two days and that therefore it was necessary for us to bivouac here, where it was still to be found. Of course what they were after was to give their camels yet another opportunity of eating their fill from the *rāk* bushes. We went to sleep as good friends, having obtained the promise to break camp at half past three the next morning. The camels, who had strayed far away, were however not to be found in the darkness before the dawn, and it was nearly five o'clock

000 before we got our caravan on the move. A disappointment of this kind does not improve the mental atmosphere, especially before one has learnt to know one's followers. Distrust of the honesty of their promise to do all in their power, and the overwhelming desire to go quickly forward on account of the scantiness and bad quality of our food bred in us a mood of tension and exhaustion.

133 The mountain scenery through which we passed became ●312 gorgeous. The geological strata were clearly visible in the 712 walls of the dry river-beds through which our path ran. Before us was a lofty chain of granite mountains like a huge wall with sharp peaks and jagged tops. It grew very warm among those bare rock-walls where we had to climb laboriously over sharp, slippery ground. To one side of the path was a brackish spring of whose water even the animals refused to drink. We mounted towards the high mountain-pass which our people called Hûta. The remains of a strongly fortified wall built of fragments of uncut stone stand in the pass. Heavy fighting took place there ten years ago when [764] el-Qeʿēṭi sent an expedition to conquer Wādī Ḥajr. The graves of the slain are marked by simple heaps of stones, on either side of the mountain path. After a long descent we reached the wādī again at just about the hottest time of day. Its banks here are steep and so we could not get at the enticing water or the green *rāk* bushes, but our Bedouins went in search of a place where it would be possible 000 to descend. We had made up our minds to rest for the afternoon, not here in el-Qulēta, but further on at Nēfa. The intense desire to hurry on at all costs and to get to the end made Von Wissmann and me decide foolishly to force matters and, if need be, to walk alone to Nēfa without the caravan. The path wound on through a region of sand-hills and the heat was so great that we became uneasy over our decision. Luckily Dhēb had the magnanimity to give way and gave the order to follow us. Nor had we trusted in vain to little's map, for Nēfa was close at hand. Near the path was a great

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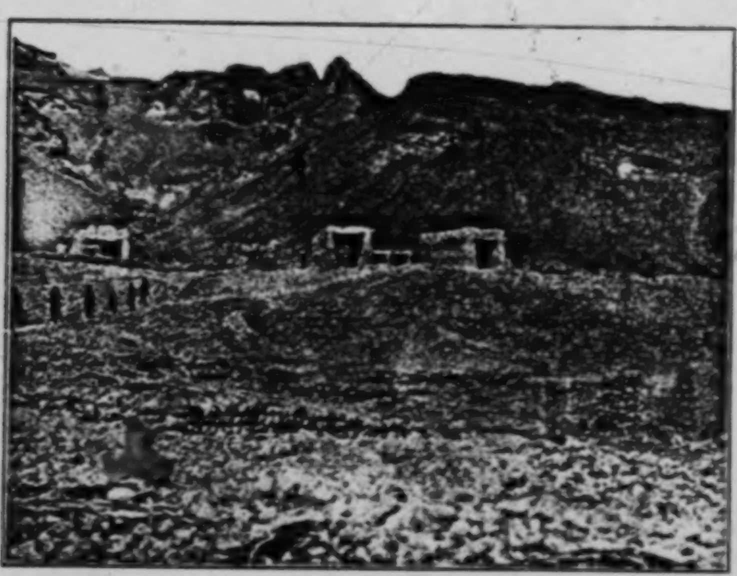

Huṣn Mṣēne', the gypsy village with the tunnel-shaped houses.

312

Our hot swimming-pool, past 'Aqabat Sifye.

facing p 232.

000 That night a wolf came near our bivouac. The Bedouins heard his call in the encircling mountains and rose in haste to gather the camels together inside the camp.

On the following morning, June 19th, we rose very early,
for it was growing important to reach Makalla as soon as
possible. The caravan was in motion at a quarter past four
and we made a straight line for the sea coast, scrambling
361 laboriously over granite boulders. By ten past eight we had
reached Mĕfaᶜ, a forlorn little village by the sea at the mouth
of Wādī Ḥadjr.

312 The river here has shrunk till it is no more than a swiftly flowing stream. No doubt the major portion of the water flows underground to the sea.

361 The population of Mĕfaᶜ dwells for the greater part in
164 miserable shacks; the few mud houses are dilapidated and
poor and dirty. The house where the soldiers live was opened for us; it was the best to be had, but still miserable enough. Only one soldier still remained; his companions had died of the fevers for which Mĕfaᶜ has an unenviable reputation. Yāfiᶜ soldiers from the healthy highlands are among the least resistant to the fever of the damp, hot coast. When this soldier's last comrade died, he had fled from the house, not daring to live there any longer. No food was to be had from the villagers for love or money, but the soldier shared some of his provisions of rice and eggs with us. He told us that the people of the place are desperately poor and unhealthy. Emigrants come here, it is true, but they do not stand it for long, and only a portion of the arable land is under cultivation. The Qeᶜēṭī soldiers regard transference to Mĕfaᶜ as equivalent to a death sentence. Their constitutions are not resistant against the endemic fever, they have not enough pay to feed themselves well, and the people of the village are so poor and miserable that nothing can be got from them.

757 Whilst lying in a corner of a little room, which smelt of indigo, I got a violent attack of cramp in the stomach, and it looked as if I should not be able to go further. Luckily the

3:Royal Institute of International Affairs U-4 (no date)1954 M1 Middle East

Hadramout MN2

133 vides seasonal grazing for camels, sheep, and goats.[1] Nevertheless,
132 the Western Protectorate, where rainfall averages from
about 2 inches a year on the coast to 7 inches in the uplands
and 12 inches in the highlands, is self-supporting in food in
241 normal seasons; the main crop is millet, with wheat, barley,
and mustard as summer crops, and other products of importance
are coffee and the drug *qat* (the chewing of which is a pernicious
habit in south-west Arabia); field-terracing is general in the
[312 highlands, and elsewhere the land is mainly irrigated from
wells. In the Eastern Protectorate the rainfall is lower and food
132 has to be imported, particularly for the coastal areas and the
241 pastoral tribes; millet is again the main cereal crop, supplemented
439 by lucerne, tobacco, honey, and fish products; until
recently most of the honey has been exported to Java, this
167 being connected with the large-scale eastward emigration from
262 the Hadramaut in the last 150 years. The date-palm provides
the chief food product of the Hadramaut.

161 The estimated population of Aden Protectorate at mid-1952
was 800,000. The organization is largely tribal, consisting of
631 some thirty sultanates, shaikhdoms, and other tribal units of
648 varying size. During the past hundred years their rulers have
one by one entered into treaty relations with the British Govern-
643 ment and are under its protection; but British administration (through an Agent in each Protectorate, responsible to the Governor of Aden) is essentially indirect, and has grown piecemeal for the prevention of intertribal conflict in the interests of travellers and commerce. Some of the chiefs have voluntarily accepted advisory treaties binding them to administer their territories in accordance with the Governor's advice. But not all of them have complete control over their nominal subjects, and the authority of those who have not accepted advisory treaties with the Governor of Aden may be highly capricious; reference has already been made to the conduct of the important Sultan of Lahej which led to a British intervention in April 1952.[2] The most important state of the Eastern Protectorate is the Quaiti Sultanate of Shihr and Mukalla which, like the Sultanate of Lahej, carries the title of 'His Highness' and has its own small regular army; the Quaiti

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[1] See 'Banishing Famine from Aden', *Commonwealth Survey*, 14 May 1949, pp. 37–8. For the distinction between steppe and desert vegetation, see Fisher, *The Middle East*, pp. 72–3 and map, p. 70.

[2] See above, p. 103; and see generally Doreen Ingrams, *A Survey of Social and Economic Conditions in the Aden Protectorate* (Eritrea, Government Printer to the British Administration, 1949), pp. 20–32. A punitive expedition was sent to the Shairi tribe in the Western Protectorate in December 1950 after an attempt to assassinate the British Agent.

3:Royal Institute of International Affairs U-4 (no date)1954 M1 Middle East

Hadhram... r4412

Sultan formerly held the hereditary appointment of Zamindar 161
of the Nizam of Hyderabad's Army Levy, which recruited 631
largely from Quaiti territory. Mukalla town has even achieved 648
a 'Nationalist Party', which fomented a serious riot in Decem- 668]
ber 1950.[1] Farther east lies the large Mahri Sultanate of Qishn
and of Socotra Island (pop. about 8,000); the resident adviser 643
strongly urged the Sultan in 1950 to spend more time in his
mainland territory instead of leaving it to a younger branch of
his family, while the Sultan lived on Socotra.[2] The most im- [625]
portant ruler in Wadi Hadramaut is the Kathiri Sultan of
Sayun, who has his own armed constabulary. A number of
lesser chiefs have for local security purposes their own tribal
guards, whose maintenance is partly financed by the British
Government. In addition, the Aden Government established in 721
1937 a force of Government Guards in the Western Protectorate,
and three years later in the Eastern Protectorate the Hadrami
Bedouin Legion, which was modelled on the Arab Legion of
what has since become the Kingdom of Jordan.[3]

The assistance of a British Director of Agriculture and his 648
staff is available to those rulers who desire it, and financial
help has been forthcoming since 1947 under the Colonial
Development and Welfare Act. It was proposed to expend
£410,000 in 1951-2 (including £82,000 for agriculture); only
£23,000 of this would come from local revenue, the remainder
to be provided by the British Government.[4] Drought caused a [731]
serious famine in the Hadramaut in 1943 and another less
serious one in 1948-9. The region's economy was formerly 651
helped to a considerable extent by remittances from Hadrami 312 ●
emigrants who had prospered in the farther East, but political 311
changes in Indonesia and in the Hyderabad state of India have
adversely affected this traffic, and the British authorities have
had recourse to a large-scale scheme of irrigation by diesel-engined pumps. In the Western Protectorate the development
of irrigated agriculture on over 100,000 acres at Abyan (40
miles north-east of Aden Colony) was begun with help from
Colonial Development and Welfare funds in 1947 and was
becoming self-supporting by 1952. It is a partnership on the
Sudan model between the tenants, who receive half the returns,
the landowners (the local states or private landlords), and the
board of management, who divide the other half. Long-staple 248
cotton of the Egyptian kind had become the main crop by

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[1] GB, Colonial Office, *Report on Aden for the years 1949 and 1950*, p. 60.

[2] ibid. p. 61.

[3] See A. M. Clark Hutchison, 'The Hadhrami Bedouin Legion', *Journal of the Royal Central Asian Society*, January 1950, pp. 62-3.

[4] See above, p. 112.

APPLIED CUSTOM LAW

ADEN PROTECTORATE

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312

The only codification of water laws ever attempted in Arab countries is that found in the Mejelle Code of the Ottoman Empire. That codification, however, has no influence in the Aden Protectorate.

No general water legislation is operative over the area known as the Aden Protectorate. In each state, local custom and conditions are followed for handling the water on traditional lines. The general principle observed in the handling of flow irrigation of the flood type derived from monsoon rains is that of "first come - first served". In the case of perennial water supplies, the tendency is for the flow to be owned by the state or by individuals and for ab antiquo rights to be followed.

In the coastal areas of the Eastern Aden Protectorate, underground water is extracted through gallery systems known locally as mayans which are similar to the Persian qanat, the Baluchi karez and the Omani falaj. Following the development of such water supplies on state land, the Quaiti State retains a one-third share in the water. The location of these mayans often presents a serious problem for the judge who has to decide if any interference results or is likely to result from the construction of new systems. In all cases the ab antiquo right is given precedence.

In certain areas in the Aden Protectorate the control of runoff water which is led to terraced fields is of vital importance, and each field area has runoff water rights. In the Dathina area it has been found necessary for the local administration to prohibit the development of new lands to avoid increased competition for the available supplies of run-off water.

Recently, state decrees in the Quaiti and Kathiri States, which are advised by a British Resident Adviser, require persons who wish to extract underground water for lift irrigation by mechanical means to obtain a license to do so. This is to prevent over-pumping from the water table and to encourage the correct location of pumping units brought into the country. It is anti-

/For an account of sources of water throughout Saudi Arabia and adjacent territory in 1920--location, adequacy, purity, etc. --see 30: Great Britain, Saudi Arabia MJ1, category 116, entire source./

30: Gt. Britain G-5 (ca. 1918) 1920 MJ1 Saudi Arabia
Hadhramaut MM2

433 The chief local industries are: salt preparing; the unhusking of coffee; and cigarette making. The first is obtained, as elsewhere, by evaporating sea-water in shallow pans, in a stretch of ground situated near Sheikh 'Othmān, and the industry, which is considerable (over 100 tons were exported in 1915), is in the hands of the Italian Salt Company. The unhusking of the coffee berries is done almost entirely in Aden, before transhipment and export.

• 312 The water-supply forms, perhaps, the most important problem at Aden: it is obtained from four sources—wells, aqueducts, tanks or reservoirs, and condensers. It has been found that the most reliable means of supply is by condensing, and but little drinking water is now drawn from wells and aqueducts. Of *wells* there are many, both within and without the British limits: the former are sunk in the solid rock of the peninsula often to a depth of from 120 to 190 ft. and the water is of good quality; the latter are around Sheikh 'Othmān and Hiswah and the water is of only fair quality, but brought largely into Aden for domestic purposes among the natives. In 1867 the British Government obtained permission from the Sultan of Lahej to construct an *aqueduct* from two of his best wells in the village of Sheikh 'Othmān. The water is received in large reserve tanks inside the fortifications and is thence distributed to the troops and establishments and to the public in limited quantities at one rupee per 100 gallons. It is of indifferent quality and fit only for purposes of ablution.

The expediency of constructing *reservoirs* in which to store rain-water was recognized in Arabia at a very early date; they are widely found in districts devoid of springs, which depend on the winter rains for a supply of water during drought (cp. Yemen, Chap. VI). The most remarkable instance on record is perhaps the great dam at Māreb (see p. 176). There is no trustworthy record of the construction of the Aden reservoirs, but they are supposed to have been begun at the time of the second Persian invasion of Yemen, about A.D. 600. In the early part of the nineteenth century, though some few were in a tolerably perfect state of preservation, many had been partially destroyed by the people, who carried away the stones for building purposes; others had been filled with débris washed down from the hills by the rain. In 1856 the restoration of these magnificent public works was begun, and thirteen have been completed, capable of holding nearly 8 million gallons of water. A very moderate fall of rain suffices to send down the numerous steep rocky ravines, by which the peninsula is intersected, stupendous torrents of water, and it is to intercept and store this water that the reservoirs have been constructed. They are so arranged

30: Gt. Britain G-5 (ca. 1918) 1920 MJ1 Saudi Arabia
Hadhramaut MM2

in series that the overflow of one reservoir may be conducted into 312 the succeeding one, and thus a complete chain has been formed. Of late years it has been the practice to put the tanks up to auction for a definite period, the highest bidder trusting to a good fall of rain to recoup his outlay. The water collected used to be sold at R. 1 per 100 gallons, and, when the tanks are full, the annual revenue amounts to Rs. 30,000; but when the rain fails, and the tanks are exhausted, a skin containing 5 gallons of brackish well-water has at times sold for 8 annas.

Shortly before the opening of the Suez Canal the Government foresaw the necessity of obtaining a plentiful and unfailing supply of good water, and in 1867 several *condensers*, on the most approved principle, were ordered out from England. Six condensers are now worked by the Government and private companies, capable of yielding 52,000 gallons a day, or a sufficient supply for 10,400 Europeans at 5 gallons per head. In 1903–4 condensed water was sold at about R. 1¼ per 100 gallons.

The following are the principal towns of the district, with adjacent 361 islands:

1. **Aden Town** comprises *Aden proper*, situated on the eastern side of the peninsula, with a population of some 20,000; and *Tawāhi*, the port at Steamer Point on the western side of the peninsula, containing some 700 to 800 houses. The two parts are separated by a distance of about four miles and connected by a good carriage-road. Half-way between them lies the important village of *Ma'la*, consisting partly of stone houses but chiefly of mat huts occupied largely by Somalis; here the local craft anchor, and nearly all the native trade of the Aden interior is shipped and loaded. Aden proper faces north-east and consists of some 2,000 or more whitewashed houses of stone or mud, few of which are noteworthy for their architecture. The streets are regularly laid out, and the whole town has been practically rebuilt since the British occupation. The dry bed of a water-course runs down to the sea from the valley in which the reservoirs are situated, and divides the town into two nearly equal parts; it serves to carry off the surplus of water when the reservoirs happen to overflow.

The only building of any pretension in Aden proper contains the court-house and treasury office; the barracks are commodious but not handsome; the Protestant church, erected in 1869, is situated on a hill; and there is a Roman Catholic convent, which, among its other activities, gives shelter to emancipated slave-girls. The bazaars are extensive, and are notable for the medley of strange peoples, in gorgeous and varied costumes, to be seen there. One of

30: Gt. Britain G-5 (ca. 1918) 1920 MJ1 Saudi Arabia

Hadhramaut MM2

Irrigation is almost entirely artificial; neither

the rains nor the variable streams are in general adequate to this 241 purpose, and watering of the soil is mainly carried on from wells. These may be sunk practically everywhere in the valleys. 312° As in many other parts of Arabia, the water is drawn up in a leather hoist by animals, usually cows, attached to a cord which passes [406] over a pulley supported on wooden struts; the water thus obtained is received in a large wooden trough whence it is spread over the land by means of little runnels.

Cattle-rearing is the principal occupation of the Bedouins. Camels 231 and donkeys are reared for transport purposes; sheep for killing and for milk; cows only for milk and irrigation work; oxen exclusively for ploughing. Horses are very rare and are considered as animals *de luxe*. Bees are numerous, and much honey is produced. The wild animals most largely found are the rabbit, 136 gazelle, wild goat, jerboa, hyena, hedgehog, a large species of lizard (permitted as food to Mussulmans), and the panther, wolf, and monkey (not permitted as food).

TRADE AND COMMERCE

The only ports of importance commercially are Makalla (see 504 p. 232), Shiheir (see p. 232), and Seihût (see p. 230), and even at 439 these the trade carried on is purely coastal, with the near coast of Africa, the Red Sea, the Persian Gulf and the southern coast of Arabia, and above all with Aden and Muscat. Trade by caravan is carried on from these ports with the whole of the interior of the Hadhramaut and with the southern Arabian littoral as far as Yemen on the west and Oman on the east. Burûm (see p. 233) and Qusei'ir are small fishing villages.

There are no made roads; the routes follow the courses of the 487 wâdis or natural paths. Transport by wheeled vehicles is impossible everywhere; 494 all is carried on by camels or donkeys. It is, however, relatively cheap; e. g. a camel from Shiheir or Makalla to Seyyûn costs only 5 florins in the good season; in summer, when forage is scarce, it is higher, but never above 10 florins.

The chief exports are dates, stuffs dyed with indigo, a superior 439 quality of wheat, and honey; smaller exports are shells and fins of fish, the latter exported to India and China. Imports: wheat, butter, coco-nuts, coffee, sugar, rice, cotton and cotton stuffs, pottery, bars of iron and worked iron, sesame oil, petroleum, and tin-ware.

HAdhrAMAnT MM2
ALGERiA MV1

cipated that its operation will be extended to any development of deep-seated water supplies. H 671 312

ALGERIA

The Oasis of Tolga

Springs and Wells

A 671 312 805

The system of distribution is on a time basis. The rotation period, which varies from one spring to another, is generally 14 days, and the unit of time measurement is the oudja or nouba which corresponds to the use of water for a 24-hour day. To correct the difference in the length of days and nights, alternate turns are taken.

The nouba is divided into hours, calculated from the length of the shadow cast by a human being as compared to the height of the same individual. At night, the mechkouda is used. This is a copper vase in the form of a truncated cone with a hole pierced in the lower portion and sometimes fitted with a regulatory mechanism. The mechkouda is placed in the water, and the time it takes to fill up measures an invariable unit of time. To correct seasonal differences in the length of the night, it is accepted that in the spring and autumn a time unit will correspond to eight successive immersions of the mechkouda, in the summer to seven immersions and in the winter to nine.

For the wells, the same system of time distribution is employed along with the 14-day rotation period. The unit of measurement and time selected expresses both the water rights of each proprietor and the period of time during which each owner is entitled to use the water. This time unit is independent of the physical quantity of water supplied, and even if the flow is small, the number of noubas or the right to 24 hours of water use remain the same.

The Purchase, Sale and Distribution of Water

A 312 423

Such transactions are made on the basis of fictitious units and are independent of any accurate gauging of the flow or supply. Each owner or his share-cropper tenants (khammas),

5: Gt. Brit., Colonial Office G-3 (1947) 1949 MM1 Aden
Hadhramaut MM2

315 A party from Petroleum Concessions Ltd. arrived in November and, after visiting Hadhramaut, went east along the coast to prospect the Mahra area.

Chapter 7: Agriculture, Fisheries and Forestry

AGRICULTURE

General

132 312 243 There was rain in the west of the Hadhramaut and in the Eastern coastal area in February, and in June and August good rains in the Hadhramaut formed a new lake above the recently finished Nuqra dam. The spring wheat and barley crops were satisfactory. Efforts to persuade the farmers to grow barley rather than wheat continued and towards the end of the year some effect was noticed, partly owing to the discovery of a way of cooking the barley so as to make it acceptable as food; experiments in machine grinding were also started.

Staff

647 The staff of the Department of Agriculture consists of a Director, two Agricultural Officers, an Agricultural Assistant, an Engineer Assistant and six Agricultural Instructors.

Land Utilisation

312 311 Lack of rainfall imposes a severe limitation on crop production in the Protectorate. Highly developed conservation measures, run-off control, flood irrigation and artificial irrigation are employed to secure arable land production. The percentage of arable land to the desert and range is estimated at 0·33 per cent. Established pastures and meadows are unknown. Dry forest scrub is found on the Island of Socotra and in the far Eastern Mahra Coast.

Crop Production

241

Western Aden Protectorate

	Acres	*Tons*
Millet—sorghum	60,000	12,000
Bulrush millet and other small millets	10,000	1,500
Wheat	1,500	750
Barley	4,500	3,000
Sesame	10,000	1,000

Eastern Aden Protectorate

	Acres	*Tons*
Millet—sorghum	20,000	4,000
Bulrush millet and other small millets	3,000	500
Wheat	3,500	2,500
Date palms	10,000	5,500

5:Gt. Brit., Colonial Office G-3 (1947) 1949 MM1 Aden

Hadhramaut MM91

231

Animal Husbandry	*Western Aden Protectorate*	*Eastern Aden Protectorate*
Camels	30,000	50,000
Cattle	45,000	10,000
Goats	500,000	420,000
Sheep	150,000	80,000

Soil Conservation

In Southern Arabia the rainfall is in general too low for an efficient 312
natural vegetation to cover the slopes and act as a check to run-off. Only 654
by the efficient use of all sources of water, particularly flood water, can cultivation continue. In these circumstances an effective system of soil and water conservation forms an integral part of traditional cultivation, and although there is a constant movement of the soil from the slopes to the flats, efficient run-off control results in comparatively little silt-laden water reaching the sea. Soil erosion occurs where flood waters are not [134]
controlled and in some areas overstocking has led to soil degradation.

The agricultural staff is at present very small but steps have been taken to improve the position.

The general view is that efforts to conserve soil should be directed to the maintenance and extension of flood-control systems. The districts of Abyan, Beihan and Ahwar and the Hadhramaut, which depend largely on a system of flood-water irrigation, have been selected as areas for improvement. In past years flood waters have gone to waste owing to local insecurity and poverty which resulted in the neglect of the deflectors and canals required for flood control. During the past few seasons active measures have been taken to remedy this state of affairs following an improvement in political conditions and by a system of advances to cultivators willing to undertake the restoration of their irrigation systems. Such flood-water control works must naturally go hand in hand with increased production measures. Special attention has been paid to Abyan where a Development Scheme is in operation.

On the Audhali plateau a system of advances to farmers who are willing to improve or sink wells or recondition terraces proved successful. Particular interest has been stimulated in areas where political difficulties have in the past caused neglect of such opportunities for the improvement of the natural resources.

Wind erosion is a factor of importance in the alluvial areas such as 134
on the coastal plain where it affects areas which have been withheld from cultivation for long periods. In such situations dessication of the soil is followed by wind erosion. The remedy is to irrigate such soils and bring them back into cultivation

Study of Agricultural Techniques

(*a*) *Soils* are mainly alluvial. In the Eastern Protectorate they are almost everywhere derived from limestone. In the Western Protectorate soils in high-altitude districts are derived from the granite and elsewhere from the limestone series or from volcanic rock. Soils in irrigated areas

5:Gt. Brit., Colonial Office G-3 (1947) 1949 MM1 Aden

Hadhramaut MM21

134 are generally of good-quality alluvium. In high-altitude districts less fertile soils are found and they are generally light in texture, except in some limestone areas where they are heavy and intractable.

312 (*b*) *Water supplies* are generally good and sufficient for the needs of cultivators who tend to concentrate in the river-valley areas or in the highland areas where some rainfall can be expected. Water becomes scarce in the Eastern districts where the settled country emerges into the Empty Quarter. Domestic water supplies are obtained from springs, wells, dams, tanks and cisterns.

(*c*) *Irrigation and drainage systems* are highly developed. At high altitudes the run-off is led to terraces in order to boost the rainfall which is insufficient in itself for crop production. Flood irrigation systems are found in the river valleys and on the coastal plain. Irrigation from permanent streams and springs is highly developed. Artificial irrigation is from open wells. Animal power lifts are worked at depths of 10 to 60 feet and in the most favourable districts command up to 10 per cent. of the total arable area.

241 (*d*) *Mechanical cultivation* is confined to one small unit used by the Abyan Board in the Abyan district. Elsewhere the simple Arabian plough, combined levelling-board and scraper, harrow and a drill attachment for the plough comprise the implements used by the cultivator.

(*e*) *Application of fertilisers.* Organic fertilisers only are used. Farmyard manure is commonly used in all mid-altitude and highland districts. Farmyard manure, human excreta and town wastes are used in the Hadhramaut. Fish and guano are commonly used in the Eastern Protectorate coastal areas.

Land Tenure

4213
- (*a*) Customary tribal law and Shari'a law affect land tenure.
- (*b*) Individual ownership is the common and most-desired form of tenancy; share tenancy is the usual form of leashold tenure.
- (*c*) His Majesty's Government owns no land in the Aden Protectorate. Some of the Arab states hold extensive tracts of land as state domain. All the land is held by indigenous inhabitants except for a very small percentage held by Yemeni settlers and a few Indians and Somalis.

Agricultural Credit

4521 4513 There are no banks in the Aden Protectorate. One small Farmers' Association giving credit assistance to its members was formed during the year. The Department of Agriculture, the local Governments, and in the Wadi Hadhramaut a Relief Organisation afforded assistance to farmers with interest-free loans.

FISHERIES

654 226 A visit in February by the Fisheries Adviser to the Secretary of State for the Colonies resulted in the arrival of a fisheries research party in

5;Gt. Brit., Colonial Office G-3 (1947) 1949 MM41 Aden

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Liaison

In the first half of 1947 the post of Protectorate Education Officer was 647 filled, a post which had been vacant for a year. This Officer's duties include tours of inspection throughout the Protectorate, and advice and assistance, through the British Agents, where required.

In the Eastern Aden Protectorate advance was somewhat hampered 658 by the absence of the Sudani Adviser for the greater part of the year on leave. However, estimates for grants under the Colonial Development and Welfare Act were prepared and despatched; these include schemes for enlarging the Intermediate School at Gheil Ba Wazir and for primary schools for the Kathiri State and Wahidi area. A number of scholarships 648 for Hadhramis were given by the Governments of Syria, Egypt and Iraq.

HEALTH

Medical Report for the Western Aden Protectorate

His Majesty's Government finance a small medical service in the 743 Western Aden Protectorate. The area covered is large, communications are poor and access to many parts is difficult. In consequence only a small proportion of the population, who are in great need of health services, can be visited and treated. Nevertheless, 16 dispensaries are maintained at strategic points in the Protectorate. New dressers are given instruction 759 in hygiene and elementary medicine and nursing care, and are then sent out to open up new areas or to work with more senior dressers in the established dispensaries. They have to deal with diseases common to all races. Certain tropical diseases such as schistosomiasis and dysentery 164 are very prevalent.

731 Drought and the vagaries of the climate also play their part in undermining the health of the inhabitants. The third year of drought in Sublihi country undoubtedly had an effect on the prevalence of tuberculosis, dental caries and vitamin deficiency diseases in that area.

Apart from the dispensaries in the Protectorate, the Keith Falconer 743 Mission Hospital in Sheik Othman which trains the dispensers also welcomes up-country patients. More would come than do at present if ignorance and superstition did not prevail in the Protectorate. Again, for many the road to the hospital is physically difficult and it is certain that they come only as a last resort and after long deliberation. In consequence doctors do all they can to visit the dispensaries as frequently as possible and to spend adequate time at each one to treat the sick, and to give instructions to dressers to keep them up to date.

Famine Relief

During 1947 the situation in the Hadhramaut continued to improve. 735 At the beginning of the year there were 1,112 persons being fed in the kitchens, which were closed by the end of March, leaving only Malja—a relief centre for those incapable of work—whose 716 inmates in March were gradually reduced to 227 in December. Nuqra dam, the major 312 famine relief work undertaken, was finished in June. Remittances 000

Hadhramaut MM2

(B) EXPORTS

No.	*Commodity*	*No. of packages*	*Quantity*	*Value Rs.*
1.	Tobacco, native	13,236 bdls.	16,158 cwt.	8,93,650
2.	Honey in comb	—	5,100 lb.	5,6001
3.	" cleaned	—	1,120 "	2,550
4.	Dates, country	—	100 "	220
5.	Lime	3,879 bags	4,100 cwt.	15,500
6.	Sheep and Goats' skins, tanned	—	10 scores	1,000
7.	Dried lemons	229 bdls.	81 cwt.	33,000
8.	Fish oil	17,049 tins	68,95 gln.	1,27,860
9.	Miscellaneous	—	—	2,93,380
			TOTAL	13,82,760

Chapter 7: Agriculture and Fisheries

AGRICULTURE

In 1948 farming conditions were generally poor in the Aden Protectorate. 241
Conditions of 1947 were reversed in the areas west of the Bana river, 132
which had a poor 1947 season, received fair rainfall and flood conditions, 731
while east of the Bana erratic and poor rainfall over large areas reduced food production to a low level. This was particularly true of the Hadhramaut and other eastern districts where complete drought returned to the country, causing famine conditions to reappear at the end of the year. The shortage of food was accentuated in those areas where the economy of the country is largely dependent on remittances from abroad. Famine appeared particularly in the Wadi Amd and in Rakhya, where food production is not secured by any irrigation from underground supplies, but is dependent entirely on rain and runoff control. These districts are also partly dependent on remittances from Hyderabad and became particularly affected when India invaded Hyderabad, and currency decrees in Hyderabad cut off the flow of remittances. The scarcity of food was further aggravated by the ban on exports of grain from the Yemen. 457 [439]

Staff

The technical staff of the Department of Agriculture consists of a Director, two Agricultural Officers (to be increased to four), an Agricultural Assistant and six Agricultural Instructors. 247 242

The Abyan Development Scheme has the part-time services of an Irrigation Adviser.

Rainfall Crop and Livestock Conditions

In the districts west of the Bana river *saif* rains were fair, particularly in the highland areas. East of the Bana river *saif* conditions were poor in many districts, but in Beihan conditions were good and the Wadi ran no less than eleven floods. Most of this water was from the runoff of 312

6:Gt. Brit. Colonial Office G-3 (1948) 1950 MMI Aden

312 the north-east Yemen Plateau, but local rain was sufficient and caused damage to the wheat and barley crops when at the harvest stage.

312 In the districts west of the Bana *kharif* conditions in Lahej and Subeihi
731 country were good, but in the highland districts rainfall was insufficient
for crop production over most of the year. In Abyan which is watered
241 by the Bana and the Hassan rivers where they enter the coastal plain, a weak flood season was experienced, but this resulted in effective flood control, and on the balance, in satisfactory crops. East of the Bana and the Abyan district, conditions in the *kharif* were bad. Lack of rain in most districts reduced crop production based on a rain and flood irrigation system to nothing. Fodder supplies needed for sustaining the animals working the water lifts in permanently irrigated areas were reduced, and lowered production from what should normally be a reliable source.

231 Livestock suffered and were reduced in numbers as a result of poor
flood conditions caused by insufficient rain. A secondary factor which
248 seriously affected camel owners and transporters in the Eastern Protectorate was a dearth of the sardines which are usually caught in great quantities on the Hadhramaut coast and used in a dry state as fodder for livestock.

241 *Crop Production*

Western Aden Protectorate

	Acres	*Tons*
Millet—sorghum	40,000	8,000
Bulrush millet and other small millets	7,500	1,125
Wheat	1,500	750
Barley	4,500	3,000
Sesame	5,500	550

Eastern Aden Protectorate

	Acres	*Tons*
Millet—sorghum	5,000	1,700
Bulrush millet and other small millets	1,000	200
Wheat and barley	3,500	2,500
Date palms	10,000	4,500

Pests and Diseases

No report of locust activity was received during the year.

Rust is probably the most important plant disease in the Aden Protectorate. In 1948, little damage was recorded from this disease.

Animal Health

232 No rinderpest was recorded during the year. Goat virus was im-
231 ported from Kenya and used for the immunisation of cattle in Abyan. Horse-sickness vaccine was used in Beihan, Abyan and Lahej.

	Western Aden Protectorate	*Eastern Aden Protectorate*
Camels	30,000	45,000
Cattle	50,000	8,000
Goats	400,000	320,000
Sheep	110,000	50,000

7: Gt. Brit., Colonial Office G-3 (1949-50) 1951 MM1 Aden

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731 cultivators to get them back to their villages and re-establish them in time to sow their crops.

The famine of 1948–49 struck the western districts of Hadhramaut, where the situation was complicated by the dependence of these districts on rain and run-off water and flow irrigation from the wadis for crop production, and where large sections of the population relied on remittances from Hyderabad, which had been absorbed into the Indian Union, and from which transfers of currency had become difficult. Finally the repatriation of several thousand Southern Arabians, many of them from the tribes most seriously affected by the famine, brought further hardship.

Little could be done to improve agricultural conditions rapidly in these western areas of the Hadhramaut. It was therefore necessary to look to the lower areas of the main wadi where water is obtainable at easy levels, and farming can be secured by permanent irrigation.

Animal power for use on lift irrigation, and dependent on fodder crops cheaply produced only from the flood-irrigated areas, was now judged to have reached its maximum use. The Famine Relief Commissioner—in this case the Acting Resident Adviser—was advised that a large-scale pump scheme, using diesel-engined units, was the only measure which appeared to show promise of quick improvement in food production. The Commissioner and the States accepted this advice in detail and made important decisions in council which were framed to abolish all taxes on diesel engine and pumps for use on irrigation work, and on diesel oil (gas oil), and to purchase and supply cultivators with machinery for cash or for deferred payments.

731 449 The States further caused revision of an important agreement with Beduin tribes regarding the transport of fuel. In the past all trade goods, including petrol, kerosene oil, and lubricating oil, had been carried by camel caravans owned by Beduin tribes occupying the country between the coastal plain and the great wadis of the interior. With the opening of the road to the interior some fourteen years ago it was agreed that motor transport should carry only passengers and small quantities of personal luggage. In the present emergency the Beduin leaders were told of the need for motor transport to carry diesel oil for a famine relief scheme and were shown that the normal system of supplying diesel oil was in 44-gallon drums which have to be broken and repacked in drums of a size convenient for camel transport. The Beduins agreed to waive their rights, and so, for the first time in Hadhramaut history, a truly mechanised scheme, independent of the camel caravans—which are entirely dependent on fodder grazing and water supplies, which may fail in a drought—was evolved.

653 406 312 It was decided to spend up to £36,000 on a pump scheme. The Famine Relief Commission, acting on behalf of the States, arranged to purchase the machinery and to sell outright for cash or on a deferred payment system, in which case 25 per cent was added to the price for repayment over a four-year period. Speed was essential, and quotations and prices were examined for nearly every type of diesel-engined

7: Gt. Brit., Colonial Office G-3 (1949-50) 1951 MM1 Aden Hadhramaut MM2

CLIMATE

132 The maritime plains are damp and hot in the summer, and are subject to sandstorms and high winds. In the winter (October to the end of March) it is cool and sometimes cold at night and much less damp.

In the mountains, which vary in height between 1,500 and 8,000 feet, it is drier and cooler during the day and night ; at above 4,500 feet it can be very cold.

In the Wadi Hadramaut and the intervening tableland or "Jol," extremes of both heat and cold are encountered. The heat, in contrast to that of the coast, is dry, but more intense. The rainfall is small.

132 312 There is little rainfall in the littoral and maritime hills ; here cultivation is chiefly dependent on irrigation from water channels and courses. In the highlands well irrigation is common and there is heavier rainfall, which is led down ravines and defiles into terraced fields.

GENERAL DESCRIPTION

133 The Western Aden Protectorate is divided into the littoral belt which varies between four and 40 miles in depth ; the maritime ranges about 1,000–2,000 feet above sea-level ; the intramontane plains over 3,000 feet high ; and the highland plateau which ranges from 5,000 to 8,000 feet high and falls away into the Ruba' al Khali (or Empty Quarter) with a mean altitude of 2,500 feet. The country between the littoral belt on the one hand and the intramontane plains and the plateau on the other is a tangle of mountains, ravines and valleys. Some of the valleys are very fertile. The plateau itself is broken up by numerous hills and mountains and is intersected with several deep valleys.

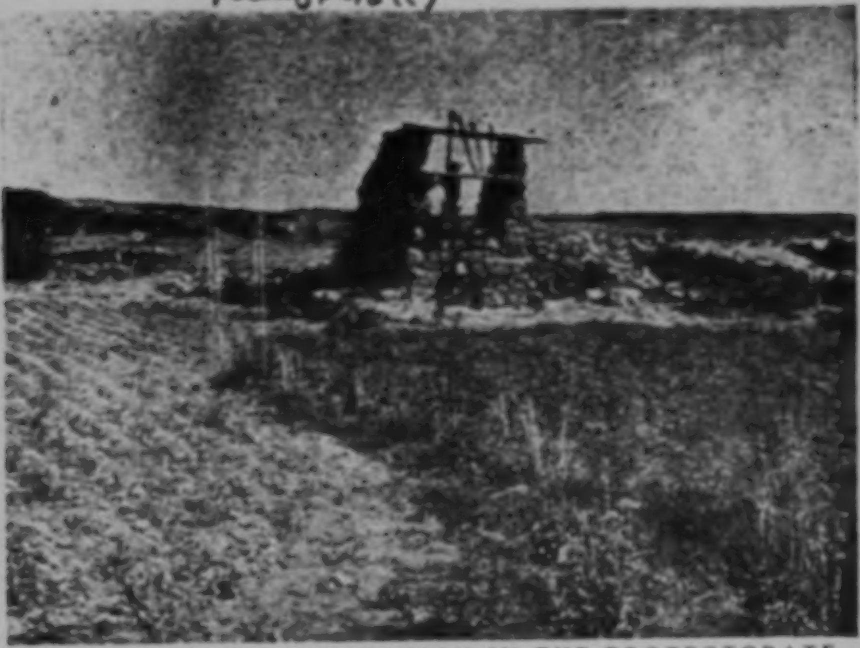
311 The greater part of the Eastern Aden Protectorate consists of desert and barren mountains intersected by wadis, some of which are fertile and cultivated. There are a number of comparatively large towns, notably Mukalla, the capital of the Qu'aiti State and principal seaport, and Sai'un, the capital of the Kathiri State.

Chapter 12: Administration

631 648 649 The Eastern Aden Protectorate comprises the Hadhramaut (consisting of the Qu'aiti State of Shihr and Mukalla, and the Kathiri State of Seiyun), the Mahri Sultanate of Qishn and Socotra, the Wahidi Sultanates of Bir 'Ali and the Sheikhdoms of Irqa and Haura, all of which have been for many years in protective treaty relations with His Majesty's Government. His Highness Sultan Sir Salih bin Ghalib al Qu'aiti, K.C.M.G., Sultan of Shihr and Mukalla, is the premier chief in the Eastern Aden Protectorate, and the Hadramaut is the most important and best organised of these areas. It is bounded on the west by the Wahidi Sultanates and on the east by the Mahri Sultanate.

648 631 The Mahri Sultanate of Qishn and Socotra is the most easterly area in the Aden Protectorate, being bounded on the east by the

facing p. 46 (c)



HAND-OPERATED IRRIGATION IN THE PROTECTORATE

[231]

ANIMAL-OPERATED IRRIGATION IN THE PROTECTORATE

Chapter 6: Production

LAND UTILISATION AND TENURE

Utilisation of agricultural land

Land for crop production is prepared for irrigation farming by flow 312 or by lift, and for dry farming, where there is a low rainfall and some 241 runoff water, the land is terraced. The great bulk of the land in the 231 Protectorates affords range conditions of light carrying capacity, particularly suited to camels, sheep and goats.

Land and water conservation and utilisation

All farming practices in the Aden Protectorates depend on a highly 312 developed system of conservation of land and water. In the highest areas, land is terraced for crop production and runoff water is led to these terraced fields in order to augment the water provided by actual precipitation ; in the mid-altitude areas, mountain torrents are diverted to bunded land laboriously reclaimed and made along the valley sides ; below, where the river systems reach wider valley areas and plains, larger diversion works and miles of canal may be used to carry flood water to bunded lands.

This process of water spreading, which is carried on in the lowest lying parts of the coastal plain, results in abundant supplies of underground water. Lift irrigation is practised in many areas and is, of course, of the greatest importance to the more arid north-easterly districts of the Protectorate. At present only supplies drawn from open wells, tapping the "phreatic" zone of water, are used.

Utilisation of land and water is governed by varying systems of 423 tribal and customary law. Where development schemes are now progressing, local authorities are being invited to modify such laws, where necessary, to meet the changing conditions.

Land Ownership

The policy, laws and regulations of each State vary but in general it may be said that the policy of the State is to reserve land ownership for the tribe and generally to tend to favour individual ownership as against State ownership. Land ownership is subject to tribal law and Mohammedan law.

Except for a small area in one district, land in the Protectorate is held by the indigenous inhabitants. The local State Governments are, in some cases, important owners of land.

Land is held in absolute ownership (Mulk), in trusts (Waqf), as dedicatory gifts (Nadr) and in a form of usufructuary tenure (Manh), with near to freehold rights granted in one or two areas to those who have rendered outstanding service to the State.

Payment of a fixed rent in money is only found in a very few 427 specialised systems. Fixed payments in kind, found usually in areas where a high value is placed on land and water, are not general. The

8:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
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There is little rainfall in the littoral and maritime hills ; here culti- 132
vation is chiefly dependent on irrigation from water channels and 312
courses. In the highlands well irrigation is common and there is
heavier rainfall, which is led down ravines and defiles into terraced
fields.

Chapter 2 : History

For a time in the eighteenth century, the Western Protectorate formed 175
part of the domain of the Imam of Sana'a in the Yemen and several
of the rulers of the tribal districts were the Imam's "wakils" or
governors until his power declined and they declared their independence.

After the occupation of Aden by the British in 1839, some of the 648
neighbouring chiefs entered into protective treaty relations with Her
Majesty's Government. Others followed suit as time went on, the
last to do so being the Audhali Sultan in 1914.

In July, 1915, during the first World War, the Turks, who had conquered the Yemen in the course of the previous century, occupied the Abdali, Haushabi and Amiri districts of the Protectorate until the Armistice of 1918.

In 1934 a Treaty of Friendship was signed between His Majesty's Government and the Kingdom of Yemen. There was an Exchange of Notes in 1950 when it was agreed to establish reciprocal diplomatic missions and to set up a Frontier Commission.

In 1944 and 1945 five Western Aden Protectorate Chiefs (the Fadhli, the Lower Aulaqi and the Lower Yafa'i Sultans, the Sharif of Beihan and the Amir of Dhala) entered into closer relations with His Majesty's Government by new treaties in which they agreed, *inter alia*, to abide by the advice of the Governor of Aden in the improvement of their administrations. Similar treaties were signed by the Upper Aulaqi Sheikh and the Audhali Sultan in 1952. In 1952 the newly elected Sultan of Lahej accepted a Political Officer as adviser and signed an advisory treaty.

The most important aspect of recent history in the Eastern Protec- 643
torate has been the decline of the traditional power of the Kathiri
Sultans and the rise of the Qu'aiti—a new Yafa'i dynasty which gained 648
power and wealth from military and other services rendered by its
members abroad to the Nizam of Hyderabad. The Qu'aiti rulers first
entered into a treaty with Her Majesty's Government in 1882. This
was strengthened in 1888 by the conclusion of a Protectorate treaty in
the common form of the treaties with other Protectorate chiefs. In
1918 the Kathiri Sultan made an agreement with the Qu'aiti Sultan
acknowledging this treaty as binding on them also. In 1937 and 1939
respectively the Qu'aiti and Kathiri Sultans signed treaties undertaking
to accept the advice of a British Resident Adviser in all matters except
those concerning Mohammedan religion and custom. The Wahidi
Sultan of Belhaf signed an Advisory Treaty in 1949.

8:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
Hadhramaut MM2

APPENDIX I

Trials with long-staple

cotton, introduced in 1946, proved successful and this crop has now 248
been chosen as the main crop for the area.

Payment for irrigation services has always been based on a crop 651
share of 25 per cent payable to the Board. The present crop share 427
and taxation on the crop, as laid down in an agreement dated 1st April, 437
1950, is as follows :

PARTY	LIVE LAND (*Land developed and cultivated for 5 years*)	DEAD LAND (*New land opened for cultivation*)
	%	%
State (Taxation) . . .	5	10
Landlord . . .	20	15
Tenant . . .	50	50
Board . . .	25	25

To secure rapid development, traditional methods have been used 242
while the land has been surveyed and existing canal systems aligned 312
and new canals of improved design have been constructed. Diversion is still by traditional methods but regulators have been constructed in the upper part of the district.

Land and Water Rights

The Board does not own or control any land except building sites 423
and experimental areas loaned from the local States and, in one case, 312
rented from a landowner.

The Board controls the diversion and distribution of all flood water 437
in the district. In the winter season the Board purchases the permanent flow of the Bana River from the Lower Yafai Sultan and his relatives and distributes this supply through the canal system to farmers who pay the customary crop share to the Board.

Tribal boundaries and settlements of title to the area have been ill defined in the past years of insecurity, but in 1951 final decisions were taken regarding tribal boundaries.

Survey

Since 1948 an area of 100,000 acres has been contour surveyed to a 654
one metre interval. Geophysical surveys, the first as a reconnaissance 312
and the second in fairly detailed form, have been made.

Irrigation Development

Development is in various stages. An area of approximately 50,000 acres of land is now controlled for irrigation farming, mainly on traditional lines. The normal flood flow to the area is expected to be sufficient to crop 30,000 acres yearly. In the 1951 flood a discharge of 224,000,000 cubic metre was observed to reach Abyan in the Bana River and this quantity, if correctly controlled, would have been sufficient for the irrigation of 50,000 acres. In actual fact only 30,000 acres were irrigated. The system is to direct flood water at speed, by diversion weirs made of brushwood and stone, into canals

8:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
Hadhramaut MM2

654 which carry the water to bunded fields where the land is inundated to
312 approximately one metre in depth. In the lower part of the district complete diversion of the flood is made by larger earth dams built
241 across the river bed. Generally one metre depth of water is sufficient to raise the crops of sorghum, sesame and cotton, though summer planted crops which have to grow when water is low are given one or two supplementary irrigations.

The date of arrival of the floods is uncertain and the pattern of crop production may alter considerably according to the date of irrigation. For instance, early summer floods will only be used for sorghum fodder, grain, melons and sesame. Later summer irrigations are particularly required for cotton planting and for the autumn sown sorghum crop.

The Farming System

Skilled cultivation is carried on by settlers from many South Arabian tribes who have come to the area since the start of the scheme. Bunding of land, construction of field channels, ploughing and sowing are carried out by draught animals, mainly oxen though camels are brought in to help occasionally. No fertilisers are used at present ; the flood brings with it a heavy burden of silt which reaches the land and maintains its fertile state.

The basic problems concern the farming system. One is largely an irrigation problem caused by a rapid rise in the water-table which has taken place since irrigation was resumed. This rise in the water-table has caused an accumulation of salts in the upper layers of the soil, and has already made crop production on 2,000 acres practically impossible by flood irrigation methods. The other problem is weed control. As a gross area of 100,000 acres may be commanded in the future, and within this area an annual average of 30,000 acres may be cropped, it should be possible to afford long periods of fallow to land in order to reduce the dangers which may arise from heavy irrigation ; but individual ownership of land will greatly complicate such arrangements.

248 At the present time the cotton variety X.1730A, a derivative of
243 Sakel, is the main cash crop grown. All other cash crops in the scheme are common to those of other irrigation tracts of a similar
246 type in South Arabia though there are experimental crops, of which sugar is one. An important feature of the scheme is the need for a large area of sorghum for grain and fodder production. The draught animals depend almost entirely on sorghum fodder for their sustenance and the main food of the people is sorghum millet. It is expected that for some time two-thirds of the area will be maintained under sorghum and one-third under cotton.

Mechanical Equipment

406 The Board owns earth-moving machinery powered by diesel-engined
242 crawler tractors with carry-all scrapers, bulldozers, a ripper and grader and two drag-line scrapers. The policy of the Board is to increase the

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HADHRAMAUT MM2

A 312

A 312, 364

boreholes near Sheikh Othman. It is pumped to tanks, from which it flows through open conduits to a storage reservoir on the isthmus. The supply for the township of Aden is pumped from the reservoir to storage tanks located on the hills above Crater and the modern harbor suburb of Tawahi. It is then distributed to individual house connections and to filling stations, from which camel carts peddle water to the older sections of the town. A portion of the supply is diverted at Sheikh Othman for irrigation purposes, while the remainder is chlorinated at the isthmus reservoir before being distributed to the towns. The domestic supply is subjected to weekly bacteriologic examinations in the laboratories of the government hospital. In spite of frequent inspections, however, numerous possibilities for contamination are connected with the sale of household supplies from camel carts. In the summer months, the temperature of the water at the tap often reaches 95° to 98° F., and cooling devices are necessary. Supplementary supplies are obtained from numerous shallow wells, but in the majority the the water is brackish and unpotable. The historic Aden "tanks" or cisterns, which date from pre-Islamic times, are rarely filled and have little value as a means of water supply.

H 312

The sources of water vary in different parts of the Protectorate. While perennial streams and springs abound in sections of the southwestern highlands, in most areas the rivers and the wadies are seasonal, and flow only for brief periods after the rains. Wells are the most frequent source of supply, but, depending upon the region, water is also procured from streams, springs or rain-water cisterns. In some localities in Eastern Aden Protectorate, it is brought to the towns from distant springs or wells in underground conduits which are comparable with the *qanats* of Iran. The water for Mukalla is obtained from a series of wells at Bakezebur and collected in a reservoir about 4 miles from the town. It is piped to individual outlets in the palaces and the

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mosques and to storage tanks from which H
the commercial carriers draw water for sale 312
to the inhabitants. Most well supplies are H
unprotected and exposed to subsoil and sur- 312
face contamination. The ablution pools in 364
the mosques are often heavily polluted and 164
serve as vehicles for the transmission of 136
intestinal infections. They also provide
conditions favorable for the breeding of
anopheline and other mosquitoes; also of
Planorbis and Bulinus snails.

There are numerous small irrigation proj- H
ects in the agricultural districts, especially 312
in Western Aden Protectorate and the Hadhramaut, many of which have been in use for decades. They depend upon water from streams or wells and, in some parts of the highlands, from spring-fed cisterns. Pumps have been introduced in the modern developments, but in most instances water is drawn from streams and wells in the traditional manner, namely, in leather buckets by means of ropes pulled over wooden pulleys by men or animals.

WASTE DISPOSAL

A

The methods of sewage disposal are 364
primitive. Septic tanks, which discharge into the main drainage system, are connected with some of the newer houses in Aden Colony, but pail privies provide the usual means of sewage disposal in both Aden and Sheikh Othman townships. In old buildings with several stories, soil pipes which may be 40 feet in length lead from the privies on the upper floors to containers below. The night soil is collected regularly from private and public latrines by the town authorities and conveyed to incineration plants. Pit latrines are employed in some quarters, but they are being abolished wherever possible. In the congested districts, the latrines are located along concrete passages between the rears of the
houses and are drained to storm sewers or A
to soakpits. The construction of a modern 364
sewerage system for the Colony is under 185
consideration.

The "long drop" method, in which closed H 364

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ADEN MM1
HADHRAMAUT MM2

H 744 Responsibility for the health of the people in the Colony resides in its Medical and Health Department, which is administered by a Director of Medical Services, with headquarters in Aden. There are no organized public health services in the Protectorate. Medical facilities are supported mainly by the British authorities in Western Aden Protectorate and by the local rulers in Eastern Aden Protectorate. A 743 As of 1950, there were 4 hospitals, with an aggregate capacity of about 600 beds, in the Colony which served the local residents and accessible portions of the Protectorate. In addition, several government, mission or private dispensaries, 2 venereal disease treatment centers and a maternity and child welfare clinic were in operation. A 743 The Protectorate facilities included 2 small hospitals, a child welfare center and 15 dispensaries in Eastern Aden Protectorate: 18 dispensaries in Western Aden Protectorate.

H A 312 Water supplies are scarce throughout this region, except in portions of the western highlands. The water supply for the Colony is derived from boreholes and treated by chlorination. Supplies in the Protectorate are obtained from streams, springs, wells or rain-water cisterns. A H 364 944 The methods of sewage disposal are primitive in the Colony, as well as in the Protectorate. Limited sanitary controls over the production and the distribution of foodstuffs exist only in THE COLONY.

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